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Draft
Northern & Eastern Colorado Desert Coordinated Management Plan and Environmental Impact Statement

an amendment to the California Desert Conservation Area Plan 1980
and Sikes Act Plan with the California Department of Fish and Game

2001-012403/NF

U.S. Department of Interior
Bureau of Land Management
California Desert District
and
California Department of Fish and Game
Inland, Deserts, and Eastern Sierra Region

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~~(4 maps)~~

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California Desert District Office
6221 Box Springs Boulevard
Riverside, California 92507-0714

6780 NECP (P)
(CA-610)

February 26, 2001

Dear Reviewer:

Enclosed for your review is the Draft **Northern and Eastern Colorado Desert Plan** (Plan) and Draft Environmental Impact Statement (EIS). Planning began in 1994. The planning area covers 5.5 million acres in the southeastern California Desert, and is one of several land use plans in progress in the California Desert. The document describes and analyzes a number of alternatives for managing species and habitats on federal lands administered by the Bureau of Land Management (BLM), Joshua Tree National Park (JTNP), and the U.S. Marine Corps (USMC) Chocolate Mountains Aerial Gunnery Range. Public scoping identified several issues. These include 1) recovery of the desert tortoise, a listed (threatened) species under both federal and state endangered species acts; 2) conservation of the variety of other species and habitats; and 3) public lands access and uses. A wide variety of decisions is proposed. These include both land use allocations and on-the-ground actions. BLM is the lead agency for the Plan.

It is worth noting some very important Plan features. First, the Plan is a collaborative project by several federal, state, and local agencies and citizens who represent a variety of public interests. A positive spirit of cooperation has stimulated every step in the planning process and has been the basis of creative solutions to very difficult issues. The cooperators are listed in Chapter 7 of the EIS and deserve our full appreciation. Second, the Plan integrates land management among BLM, JTNP, and USMC. This creates a regional basis for, and improves, local decisions. Third, the Plan will amend BLM's California Desert Conservation Area Plan, complement the existing JTNP General Management Plan and Backcountry and Wilderness Management Plan, and serve as a basis for a biological resources management plan for the Chocolate Mountains Aerial Gunnery Range. Fourth, mechanisms are proposed for long-term collaborative implementation, monitoring, and Plan maintenance. Fifth, the Plan provides strategic, ecosystem-comprehensive management, including a programmatic biological opinion for the desert tortoise. This in turn should reduce the need for further species listings, provide for desert tortoise recovery, and streamline the processing of land use permits.

The public comment period for the draft Plan and EIS is 90 days. It begins February 26 and ends May 26. Please mail comments to the letterhead address with attention to Lead, Northern & Eastern Colorado Desert Plan. Comments on the draft Plan and the adequacy of the EIS will be considered in preparing the Proposed Plan and Final EIS. Public meetings will also be held in various cities in and around the planning area to receive comments. The dates, times, and locations of these meetings will be announced later.

Sincerely,

Tim Salt
District Manager

Enclosure

Cover Sheet
Northern and Eastern Colorado Desert Plan and Environmental Impact Statement

Draft

Lead Agency:
U.S. Department of Interior
Bureau of Land Management
California Desert District

Project Location:
(portions of) Riverside, Imperial, and San Bernardino counties, California

Abstract:

The Northern and Eastern Colorado Desert Plan and Environmental Impact Statement provides alternative scenarios for a comprehensive framework for managing species and habitats, including recovery of the desert tortoise, on Federal lands managed by the Bureau of Land Management, the eastern half of Joshua Tree National Park, and the Chocolate Mountains Aerial Gunnery Range (administered by the U.S. Marine Corps Air Station, Yuma). Bureau of Land Management Field Offices included in the planning area are (portions of) Needles, Palm Springs, and El Centro.

This document was produced through a coordinated process involving numerous special interest groups and local, state, and Federal agencies, including the three noted above.

For further information contact:
District Manager, California Desert
Bureau of Land Management
6221 Box Springs Blvd.
Riverside, CA
(909) 697-5216

Public Comments period:
90 days, ending May 26, 2001.

February 2001

Draft

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Bureau of Land Management
California Desert District
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California Department of Fish and Game
Inland, Deserts, and Eastern Sierra Region
February 2000

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District Manager, Bureau of Land Management

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Regional Manager, California Department of Fish and Game

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Summary

The following pages provide summaries of four Plan alternatives (Table S-1) and their cumulative impacts (Table S-2). Chapters Two and Four, respectively, provide a more complete description of Plan alternatives and impacts. Chapter One and the introductory pages to Chapter Two provide an overview on the need, purpose, and general nature of the Plan. The reader is encouraged to read these parts of the document prior to reading the Summary.

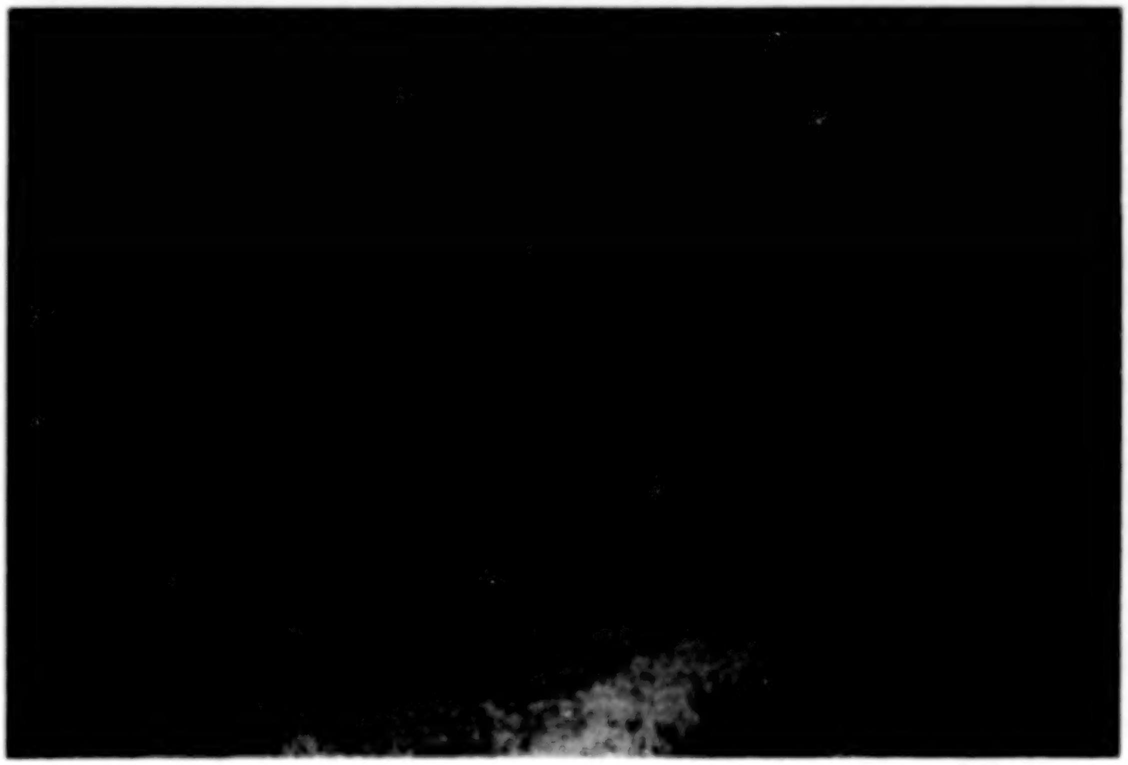

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Table S-1 Summary of Alternative

The following table displays a summary of management for each issue within each alternative. More details are shown in Chapter 2 and the consequences of these management prescriptions are in Chapter 4.

Issues	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Standards & Guidelines	Manage ecosystem health with the National Fallback Standards	Manage ecosystem health with the Regional Standards	Same as Preferred Alternative.	Same as Preferred Alternative.
	Manage grazing activities with "fallback" guidelines from page 5.	Manage grazing activities with guidelines from page 7/8.	Same as No Action Alternative.	Manage grazing activities with guidelines from page 8/9.
Recovery of the Desert Tortoise	Manage current Category I and II desert tortoise habitat in the Chemehuevi area.	Designated 874,843 acres as the *Chemehuevi* DWMA.	Designate 741,440 acres as the *Chemehuevi* DWMA.	Same as Small DWMA "A" Alternative.
	Manage current Category I and II desert tortoise habitat and the Chuckwalla Bench ACEC in the Chuckwalla area.	Designate 720,077 acres as the Chuckwalla DWMA.	Designate 632, 094 acres as the *Chuckwalla* DWMA.	Same as Small DWMA "A" Alternative.
	JTNP is managed according to the General Management Plan and with an emphasis on natural ecosystem management policies.	Designate JTNP as the JTNP DWMA.	Same as Preferred Alternative.	Same as Preferred Alternative.
	Manage *Chuckwalla Bench ACEC* and *Milpitas Wash HMP* according to existing plans.	Delete *Chuckwalla Bench ACEC* and *Milpitas Wash HMP* which are incorporated into proposed DWMA.	Delete *Chuckwalla Bench ACEC* which is incorporated into the proposed DWMA.	Same as Small DWMA "A" Alternative.
	Retain existing *Multiple-Use* Class designations.	Re-designate all *Multiple-Use* Class M lands in proposed DWMAs as *Multiple-Use* Class L.	Same as Preferred Alternative.	Same as Preferred Alternative.
	Retail existing Category I, II, and III Desert Tortoise Habitat area.	Designate proposed DWMAs as Category I Desert Tortoise Habitat.	Same as Preferred Alternative.	Same as Preferred Alternative.

Table S-1 Summary of Alternative

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Recovery of the Desert Tortoise	Surface disturbing projects are evaluated on a case-by-case basis.	Limit cumulative new surface disturbance to 1 percent.	Same as No Action Alternative.	Limit cumulative new surface disturbance to 3 percent.
	Compensation required according to California Statewide Policy.	Compensation for disturbance of public lands within DWMAs will be required at a 5:1 ratio.	Compensate for disturbance of public lands within DWMAs will be required according to the Statewide Policy.	Same as the Small DWMA A Alternative.
	ACECs entry points are signed and in certain cases, fenced.	Fence, sign or patrol the periphery of DWMAs to control conflicts with adjacent land uses.	Fence, sign or patrol the periphery of DWMAs only where there are conflicts with adjacent land uses to control conflicts.	The periphery of the DWMAs will not be fenced.
	Boundary of Lazy Daisy Allotment will remain unchanged	Reduce Lazy Daisy Allotment by 21,606 acres.	Reduce Lazy Daisy Allotment by 140,357 acres.	Same as the Small DWMA A Alternative.
	Boundary of Chemehuevi Allotment will remain unchanged.	Ephemeral authorization will be eliminated, Chemehuevi lease will be terminated	Same as the Preferred Alternative	Portion of Chemehuevi Cattle Allotment falling within the highest density tortoise habitat will be eliminated.
	Not addressed.	The terms and conditions of the 1994 BO will be added to the CDCA Plan Grazing Element.	Same as the Preferred Alternative.	Same as Preferred Alternative.
	Not addressed.	Cattle allotment lessee may voluntarily relinquish all grazing authorizations.	Not addressed.	Same as Preferred Alternative.
	Perennial plant utilization may not exceed 40 percent in any key area.	When ephemeral forage production is less than 230 pounds per acre, cattle shall be substantially removed for the DWMA.	Not addressed.	Same as the No Action Alternative.

Table S-1 Summary of Alternative

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Recovery of the Desert Tortoise	Permits for iive vegetation harvest may be issues in non-wilderness areas after environmental review.	Permits for live vegetation harvest may be issued after environmental review only within salvage areas inside where surface disturbance has been authorized.	Same as No Action Alternative.	Permits for live vegetation harvest may be issued after environmental review for creosote bush stems or any plant within salvage areas where surface disturbance has been authorized.
	Lands acquired through compensation or mitigation are classified OPEN for disposal or use, under authorities listed on page 16.	Land acquired through compensation or mitigation will be classified CLOSED for disposal or use, under authorities listed on page 19.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Fencing of major highways and railroads will be considered as mitigation for new construction projects.	Interstate, State highways and railroads will be fenced as called for in Table 2-6 page 21 Preferred Alternative.	Interstate, State highways and railroads will be fenced as called for in Table 2-6 page 21 Small DWMA A Alternative.	Interstate, State highways and railroads will be fenced as called for in Table 2-6 page 21 Small DWMA B Alternative.
	Bridges and culverts will be considered mitigation when new construction projects are proposed.	Bridges and culverts for animal passage will be required for new linear projects.	Bridges and culverts for animal passage will be required for new linear projects and existing linear projects will be retrofitted.	Same as Preferred Alternative.
	Stopping, parking, and camping within proposed DWMAs will be allowed only within 100 feet of a route within sensitive areas such as ACECs.	Stopping, parking and vehicle camping will be allowed 100 feet from the centerline of the road inside DWMAs.	Stopping, parking, and camping within proposed DWMAs will be allowed in designated areas only.	Stopping, parking, and camping within proposed DWMAs will be allowed only within 300 feet of a route.
	Federal agencies will not dispose of public lands within Category I habitat.	Federal agencies will not dispose of public lands within proposed DWMA.	Same as Preferred Alternative.	BLM may dispose of public lands within proposed DWMA if it augments the overall management strategy.
	Raven management is accomplished by evaluating projects on a case by case basis and appropriate mitigation is prescribed.	Proposed projects which potentially increase raven populations within five miles of DWMAs will require mitigation measures to reduce or eliminate proliferation of ravens.	Same as Preferred Alternative.	Same as Preferred Alternative.

Table S-1 Summary of Alternative

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Recovery of the Desert Tortoise	Raven management is accomplished by evaluating projects on a case by case basis and appropriate mitigation is prescribed.	Remove ravens that are known to prey on tortoise through selective shooting, poisoning, or trapping and euthanization where there is evidence of raven predation in or within 1 mile of tortoise habitat.	Ravens that are known to prey on tortoise may removed through non-lethal means only.	Same as the Small DWMA A Alternative.
	Not addressed.	Raven management is accomplished by evaluating projects on a case-by-case project basis and appropriate mitigation is prescribed.	Same as Preferred Alternative.	Same as Preferred Alternative.
	Manage Categories with current boundaries.	All Desert Tortoise Category I, II and III outside of DWMA boundaries will be converted and managed as Category III habitat.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
Special Status Animals and Plants and Natural Communities.	Continue implementation of current HMPs.	Designate essential habitat for the Sonoran Desert Bighorn Sheep and the Southern Mojave Desert Bighorn Sheep as WHMAs (Map 2-18).	Same as Preferred Alternative.	Same as the Preferred Alternative.
Desert Bighorn Sheep	Continue implementation of current HMPs.	Delete all current bighorn sheep HMPs which are captured inside WHMAs.	Same as Preferred Alternative.	Same as Preferred Alternative.

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Table S-1 Summary of Alternative

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Desert Bighorn Sheep Continued	Retain current Multiple Use Class designation in the Eagle Mountains area.	Change Multiple Use Class designation in the Eagle Mountains area from MUC I to MUC L.	Same as Preferred Alternative.	Same as Preferred Alternative.
	Not addressed.	Fence potential hazards to bighorn sheep with substantial fencing materials.	Areas with potential hazards to bighorn sheep will not be fenced.	Same as Preferred Alternative.
	Manage the Ford Dry Lake Allotment with current boundaries and management practices.	Eliminate the Ford Dry Lake Allotment because it is less than 9 miles from occupied bighorn sheep range.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Manage the Rice Valley Allotment with current boundaries and management practices.	Eliminate 9,264 acres of the Rice Valley Allotment because it is within 9 miles of current occupied bighorn sheep range.	Eliminate the Rice Valley Allotment because it is less than 9 miles from the Little Maria Mountain deme which will be reestablished.	Same as the Preferred Alternative.
	Not addressed.	In areas managed for burros, deer, and bighorn sheep, natural water sites will be designated to each on an equal shares basis.	Wild burros will be fenced out of all natural and artificial waters within currently occupied bighorn sheep range in the WHMA.	Same as the Preferred Alternative.
	Proposals for new water developments will be considered on a case-by-case basis.	Construct 87 new water developments to expand usable habitat both inside and outside of wilderness.	Same as the Preferred Alternative.	Construct 21 new water developments to expand usable habitat outside of wilderness areas.
	Proposals to reestablish lost demes on BLM lands are addressed on a case-by-case basis and require an HMP and State director approval.	Reestablish the following lost demes: • Cargo Muchacho Mountains • Mule Mountains • Palo Verde Mountains	Same as the Preferred Alternative.	Same as the Preferred Alternative.

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Table S-1 Summary of Alternative.

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Special Status Animals and Plants and Natural Communities.				
Desert Mule Deer	Proposals for new water developments are considered on a case-by-case basis.	Construct 50 new water developments to expand usable habitat both inside and outside of wilderness.	Same as the Preferred Alternative.	Construct 21 new water developments to expand usable habitat outside of wilderness.
Other Special Status Animals and Plants and Natural Communities	Habitat of each special status species and each natural community shall be protected using existing land use policies, designations and fallback guidelines.	Designate 542,443 acres as an 80 percent (generally) Multi-species WHMA (Map 2-18).	Designate 812,323 acres an 80 percent (generally) Multi-species WHMA (Map .	Designate 512,455 acres as a 50 percent (generally) Multi-species WHMA.
	Mitigate impacts of proposed projects using commonly applied mitigation.	Mitigate impacts of proposed projects using commonly applied mitigation measures and surveys.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	Bat gates shall be constructed on caves or mine roost only where there is significant potential for negative effects.	Bat gates shall be constructed on all caves or mines roost where entry would pose a hazard to humans or bats outside CMAGR.	Same as the Preferred Alternative.
	Not addressed.	Not addressed.	All significant bat roost sites shall be withdrawn from mineral entry, subject to valid existing rights.	Not addressed.

Table S-1 Summary of Alternative

Issues	No Action Alternative 1	Preferred Alternative	Alternative 2	Alternative 4
Special Status Animals and Plants and Natural Communities.	Not addressed.	All riparian habitat or permanently flowing streams within 5 miles of a maternity roost for Townsend's big-eared bat shall have a riparian proper functioning condition analysis.	All significant roost sites shall be withdrawn, at generally 2.5 acres per site, from mineral entry, subject to valid existing rights.	Same as the Preferred Alternative.
	Not addressed.	Closure of any route within 1/4 mile of any significant bat roost shall be strongly considered.	Same as the Preferred Alternative.	Same as Preferred Alternative.
	Not addressed.	OHV races, construction activities, blasting and similar activities shall not be authorized within 1 mile of a prairie falcon or golden eagle eyrie between February 15 through June 15.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	Closure of any route within 1/4 mile of a prairie falcon or golden eagle eyrie shall be strongly considered.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	OHV races, construction activities, blasting and similar activities shall not be authorized within 1 mile or a prairie falcon or golden eagle eyrie between February 15 through June 15.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Remove and control tamarisk and add four nest boxes.	Habitat for elf owl at Corn Springs shall be improved by removing tamarisk to elevate water table, controlling starlings, planting cottonwoods, adding nest boxes and minimizing ground water pumping.	Same as the Preferred Alternative.	Same as the Preferred Alternative.

Table S-1 Summary of Alternative

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Special Status Animals and Plants and Natural Communities.	Not addressed.	Limit construction activity period to September 1- February 1 if burrowing owls are present.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Permits for live vegetation harvest may be issues in non-wilderness areas after environmental review.	Harvest of live vegetation shall be prohibited in the Multi-species Conservation Zone to protect perching and nesting sites for thrashers.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	Limit construction activity period to July 1 - December 1 if Crissal thrashers are present in a project area.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	The following dunes and playas are designated as "open" or "closed" to vehicle use: • Ford Dry Lake (portion of) (Open) • Cadiz Dunes (Closed) • Rice Valley Dunes (portion of) (Open)	The following dunes and playas shall be closed to vehicle use: • Palen Dunes • Rice Valley Dunes • Ford Dunes • Palen Dry Lake • Ford Dry Lake (portion of)	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	Special mitigation measure avoiding disturbance of habitat of Couch's spadefoot toad shall be strongly considered on all projects.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	Closure of any route within 1/4 mile Couch's spadefoot toad site shall be strongly considered.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	Install permanent fencing where unauthorized vehicle use is observed in temporary impoundment areas for Couch's spadefoot toad.	Same as the Preferred Alternative.	Same as the Preferred Alternative.

Table S-1 Summary of Alternative

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Special Status Animals and Plants and Natural Communities.	Not addressed.	Closure of any route within 1/4 mile of a natural or artificial water source shall be strongly considered.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	Closure of redundant routes shall be strongly considered.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Acquisition is primarily focused within some ACECs, tortoise Category I and II habitat and wilderness areas.	Acquire private and SLC lands outside NPS with known occurrence out to one mile from each occurrence of Coachella Valley Milkvetch.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Compensation for disturbance in Desert Dry Wash Woodland and Desert Chenopod Scrub communities is not required.	In the Multi-species WHMA, compensation for disturbance of Desert Dry Wash Woodland and Desert Chenopod Scrub communities shall be required at 3 acres for each acre disturbed.	Same as the Preferred Alternative.	In the Multi-species WHMA, compensation for disturbance of Desert Dry Wash Woodland and Desert Chenopod Scrub communities shall be required at 1 acre for each acre disturbed.
	Compensation for disturbance in Sand Dune and Playa communities that are closed to vehicle use, is not required.	In Sand Dune and Playa communities that are closed to vehicle use, compensation for surface disturbance shall be required at 3 acres for each acre disturbed.	In Sand Dune and Playa communities that are closed to vehicle use, compensation for surface disturbance shall be required at 1 acre for each acre disturbed.	Same as the Small DWMA A Alternative.
	Not addressed.	Selected Springs and Seep communities shall be improved to enhance habitat for special status bird species.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Not addressed.	Construction projects will not disturb Spring and Seep communities during the duration of the project.	Same as the Preferred Alternative.	Same as the Preferred Alternative.

Table S-1 Summary of Alternative

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Wild Horses and Burros	Manage the Chemehuevi and Havasu HMAs with current boundaries and AML of 150 burros as set in the CDCA Plan and the Arizona BLM HMAPs.	Combine Chemehuevi and Havasu HAs and HMAs into one HA and HMA to be named *Chemehuevi HA* and *HMA*. The HMA is 147,630 acres and AML is reduced from 150 to a current management level of 108 which shall remain in effect until an AML is established through monitoring of habitat.	Eliminate the Chemehuevi, HAVASU (California side), Chocolate/Mule Mountain, Cibola-Trigo (California side) and Picacho HMAs.	Combine Chemehuevi and Havasu HAs and HMAs into one HA and HMA to be named *Chemehuevi HA* and *HMA*. The HMA is 263,021 acres and AML is reduced from 150 burros to a current management level of 108 burros, which shall remain in effect until an AML is established through monitoring.
	Manage the Picacho and Chocolte/Mule Mountains HMAs with current boundaries and AML as set in the CDCA Plan of 42 horses and 22 burros, respectively. The Arizona BLM Cibola/Trigo HMA will be managed with current boundaries and AML as set in their HMAP of 190 burros.	Eliminate the Picacho HMA for horses. Combine historical burro range Chocolate/Mule Mountains, and the Cibola-Trigo HAs into one HA and HMA for burros to be named *Chocolate/Mule Mountains HA* and *HMA*. Reduce AML of 212 burros to a current level of 121 burros which shall remain in effect until an AML is established through monitoring.	Combine the Chemehuevi and Havasu Has into one HA named *Chemehuevi* HA. Combine the Chocolate/Mule Mountains, Cibola-Trigo, and historic burro range into one burro HA called *Chocolate/Mule Mountain* HA. An HMA will not be established and burros will be managed for a population level of zero.	Eliminate the Picacho HMA for horses. Combine historical burro range, Chocolate/Mule Mountains HA and the Cibola-Trigo HA and HMA for burros to be named *Chocolate/Mule Mountains* HA and HMA. Manage for a current level of 138 burros until an AML is established through monitoring.
	Manage the Piute Mountain HA for zero burros, removing current population.	Same as the No Action Alternative.	Same as the No Action Alternative.	Establish the *Piute Mountain HMA* (39,780 acres) at current population level of 37 burros until an AML is established through monitoring.

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Table S-1 Summary of Alternative

Issues	No Action Alternative	Preferred Alternative	Small DWMA "A" Alternative	Small DWMA "B" Alternative
Motorized-vehicle Access/Routes of Travel Designation	Routes will be closed in accordance with the biological parameters established in the NECO Plan regardless of Multiple-use Class.	Amend the CDCA Plan to require motorized-vehicle access will be managed in accordance with current MUC L guidelines irrespective of Multiple-Use Class, except in MUC C and areas designated "open" for vehicle use.	Same as the Preferred/Large DWMA Alternative except that routes designated "open" within DWMAs are limited to paved roads, maintained dirt roads, and recreational touring routes	Same as the Small DWMA A Alternative except that redundant routes outside DWMAs would be designated open.
	All "existing" routes in MUC L areas that have been inventoried and mapped including navigable washes would be designated "open" for motorized-vehicle use except as noted in Chapter 2 page 51.	All "existing" routes that have been inventoried and mapped including navigable washes would be designated "open" for motorized-vehicle use except as noted in Chapter 2 page 59.	Same as the Preferred/Large DWMA Alternative.	Same as the Preferred/Large DWMA Alternative.
	Competitive off-highway vehicle events are allowed on competitive recreation routes established through the CDCA Plan, as amended.	Eliminate the *Parker 400* and the *Johnson Valley to Parker* route will be permitted in accordance with parameters in Chapter 2 page 62.	Eliminate the *Parker 400* and the *Johnson Valley to Parker* routes.	Eliminate the *Parker 400* and the *Johnson Valley to Parker* route will be permitted in accordance with parameters in Chapter 2 page 69.
Land Ownership Pattern	Federal agencies will seek to acquire state or private lands within some ACECs, tortoise Category I and II, and wilderness acres through purchase, donation, or exchange according to scheduled priorities.	Federal agencies will actively seek to acquire lands or interests in lands within DWMAs and WHMAs (except within Bighorn Sheep corridors) through purchase, donation, or exchange according to scheduled priorities.	Federal agencies will actively seek to acquire lands or interests in lands within DWMAs and WHMAs (except within Bighorn Sheep corridors) through purchase, donation, or exchange according to scheduled priorities.	Federal agencies will actively seek to acquire lands or interests in lands within DWMAs and WHMAs (except within Bighorn Sheep corridors) through purchase, donation, or exchange according to scheduled priorities.
	Identify public lands suitable for disposal of least biological sensitivity into private ownership where consolidation and location of private land both promotes private development and increases tax base for local governments.	BLM will dispose of lands in areas outside wilderness, DWMAs, and WHMAs and not containing known occurrences of rare plants, springs, bat or other special status species and where such action supports consolidation and location of private land to promotes private development and increases tax base for local governments.	Same as the Preferred Alternative.	Same as the No Action Alternative.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Air Quality ***From Issue 1: Standards and Guidelines***	Implementing Standards & Guidelines would promote the maintenance of the processes and functions necessary to maintain and improve healthy soil and vegetation within grazing allotments which would improve air quality from reduced particulate pollutants.	Adoption of the regional standards for Public Land Health, and guidelines for grazing management would be similar to the No Action Alternative. However, the Regional Standards would apply on an area-wide basis rather than just grazing allotments. This additional area could contribute to improvement to air quality at a greater rate.	Impacts are similar to the Preferred Alternative.	Impacts are similar to the Preferred Alternative.
Impacts to Water Quality ***From Issue 1: Standards and Guidelines***	Implementing the rangeland health standards and guidelines will result in enhancement and improvement in riparian and wetland conditions within grazing allotments through stabilization of streambanks and reduction in water runoff.	Implementation of the National Fallback standards and guidelines, cumulatively with the many other state and regional initiatives to protect, enhance, and maintain ecosystem health, will result in improved rangeland health. There will be less soil erosion, improved vegetative diversity, improved livestock forage, improved upland and riparian habitats, and improved water quality.	Impacts are similar to the Preferred Alternative.	Impacts are similar to the Preferred Alternative.
Impacts to Soil Quality ***From Issue 1: Standards and Guidelines***	Implementing the rangeland standards and guidelines will result in positive impacts to uplands soils which will improve overall watershed health slowly over a long time frame.	Adoption of the regional standards for Public Land Health, and guidelines for grazing management would be similar to the No Action Alternative. However, the Regional Standards would apply on an area-wide basis rather than just grazing allotments. This additional area could contribute to improvement to soil quality at a greater rate.	Impacts are similar to the Preferred Alternative.	Impacts are similar to the Preferred Alternative.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Vegetation Management ***From Issue 1: Standards and Guidelines***	Managing ecosystem health in accordance with National Fallback Standards benefit natural communities, ecosystem processes and special status plants by developing standards for soils, riparian/wetlands, stream function and native species within grazing allotments.	Adoption of the regional standards for Public Land Health, and guidelines for grazing management would be similar to the No Action Alternative. However, the Regional Standards would apply on an area-wide basis rather than just grazing allotments. This additional area could contribute to improvement to vegetation at a greater rate.	Same as the No Action Alternative.	Same as the No Action Alternative.
From Issue 2: Recovery of the Desert Tortoise	Current Management on 189,564 acres of ACECs has a positive benefit on natural communities and special status plants through specific prescriptions aimed at improving habitat and reducing surface disturbing activities (i.e., route closures, re-vegetating, tamarisk removal).	Managing 1,684,248 acres of ACECs would enhance natural communities and special status plant species by increasing the amount of each community and species inside of an area of protection. Additionally, prescriptions aimed at improving habitat conditions will have a positive effect on natural communities and special status species.	Impacts to natural communities and special status plant species are similar to those discussed in the Preferred Alternative over a smaller area (18%).	Same as the Small DWMA A Alternative.
	Impacts from grazing on 605,453 acres include; disruption of sensitive natural communities, reduction in annual plant diversity and compaction of soils.	Reduction of grazing by 36% will reduce impacts from disruption of sensitive natural communities, reduction in annual plant diversity and compaction of soils.	Reduction of grazing by 69% will have similar positive benefit to natural communities and special status plant species as the Preferred/Large DWMA Alternative on a greater scale.	Positive impacts to natural communities and special status plant species are similar to those described in the Preferred/Large DWMA Alternative.
From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation	Impacts from casual off-road vehicle activity include direct loss of vegetation, introduction and spread of exotic plants and alteration in surface water flow and percolation.	Elimination of the *Parker 400* and the MUC criteria for new race routes would eliminate impacts associated with such events.	Elimination of the *Parker 400* and the *Johnson Valley to Parker* race routes would eliminate all impacts associated with such events.	Same as the Preferred Alternative.

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Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA	Small DWMA A Alternative	Small DWMA B Alternative
From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation	Impacts from casual off-road vehicle activity include direct loss of vegetation, indtroduction and spread of exotic plants and alternation in surface water flow and percolation.	The designation of routes and reduction in the route network will reduce route proliferation and reduce the rate of spread of alien plants along route corridors. Closure of three dunes and two playas to OHV use will aid in restoration of vegetation communities in and around them.	Impacts from the pattern of road designations would be about the same as for the Preferred Action except with fewer "open" roads in DWMAs. Impacts to plant communities and special status plant species would be reduced.	Impacts from the pattern of road designations would be about the same as for the Preferred Action with two exceptions: fewer "open" roads in DWMAs will benefit plant communities and special status plant species; a slightly greater number of "open" roads outside DWMAs would add corresponding additional impact.
Impacts to Wildlife: **Desert Tortoise** ***From Issue 1: Standards and Guidelines***	Desert tortoise have protection through a combination of designated areas including Critical Habitat, Wilderness, JTNP, Military, ACECs and HMPs.	Designation of 1,684,248 acres as ACECs and tortoise DWMAs will provide positive benefits to the desert tortoise through implementation of prescriptions aimed at reducing or eliminating impacts to tortoise.	Designation of 1,384,310 acres as ACECs and tortoise DWMAs will provide similar benefit to the desert tortoise as the Preferred/Large DWMA Alternative.	Same as the Small DWMA A Alternative.
From Issue 2: Recovery of the Desert Tortoise	Surface disturbing projects are evaluated on a case by case basis without a limit. Potential impacts include; surface disturbance on a larger scale, little incentive to direct projects to other less sensitive areas and reduced rehabilitation commitments.	Limiting surface disturbing activities to 1% benefits wildlife species through reduction in vegetation removal, decreasing fragmentation affects and maximizing rehabilitation commitments.	Same as the No Action Alternative.	Impacts from limiting surface disturbance to 3% are similar to those discussed in the Small DWMA A Alternative.
	Cattle and sheep grazing on 605,453acres effect desert tortoise and other species through: 1) competition for forage; 2) trampling of tortoise burrows; 3) changing of plant composition, density, and cover; and 4) compaction of soils.	The effects of reducing cattle grazing by 36% could include: an improvement in vegetative cover, reduction of competitive grazing between tortoise and cattle, and a reduction in burrow trampling.	Impacts are similar to those discussed in the Preferred/Large DWMA Alternative but to a greater degree due to a reduction of 68%.	Impacts are similar to those discussed in the Preferred/Large DWMA Alternative.
	Unfenced highways such as I-40, I-10, and highway 95, cause direct mortality to tortoise as well as habitat	Fencing 114 miles of highways will reduce desert tortoise mortality from highways and increase gene flow by	Fencing 657 miles of highways will have increased protections for tortoise against deaths related to vehicular	Impacts are similar to those discussed in the Preferred/Large DWMA Alternative to a lesser degree by

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Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Wildlife: Desert Tortoise Continued	fragmentation, reduced gene flow and additional vandalism from improved access.	providing culverts which allow tortoise to travel under highways safely.	travel.	fencing 57 miles of highways.
From Issue 2: Recovery of the Desert Tortoise	Driving in washes can result in damage to vegetation and burrows from travel out of the wash bottom.	The closure of washes to vehicles in some areas of the DWMAs will reduce tortoise mortality and crushing of burrows.	The closure of all wash systems has similar positive benefits as the Preferred Alternative, however the size of the DWMA is reduced so that essentially there is the same area of closed wash systems.	Same as the Small DWMA A Alternative.
From Issue 4: Wild Horses and Burros	Burro grazing in two Herd Management Areas inside of Critical Habitat can cause impacts to tortoise which include: burrow trampling, competition for forage and a decrease in plant biomass and cover.	Eliminating burro grazing inside of DWMAs will have a positive effect on tortoise by reducing competitive for forage and improving habitat.	Impacts from elimination of burro grazing throughout the entire Planning Area are similar to those discussed in the Preferred Alternative on a larger scale.	Establishing the Piute Mountain HMA could cause additional impacts to desert tortoise where burro grazing occurs within the HMA. The HMA is inside the DWMA and there may be additional impacts to desert tortoise from burrow trampling, competition for forage and degradation to habitat through reduced biomass and plant cover.
From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation	Impacts to desert tortoise from vehicle travel include, death from being struck by vehicles, habitat fragmentation, increased in predator populations using vehicle roadkills, changes in plant community from vehicle-related fires and restriction of movements of tortoises.	Designating routes of travel as "open", "limited", and "closed" will result in a decrease in negative impacts associated with off-road activities, such as habitat degradation, proliferation of roads, harassment of wildlife and road kills.	Impacts are similar to the Preferred Alternative.	Impacts are similar to the Preferred Alternative.
Impacts to Wildlife: Bighorn Sheep ***From Issue 2: Recovery of the Desert Tortoise***	Bighorn sheep receive positive benefits from management of JTNP, CMAGR, and BLM wilderness. A total of 75percent of occupied range are in these protection areas.	Positive impact to bighorn sheep are similar to those described in the No Action Alternative, however there are additional benefits through the designation of 1,684,248 acres of	Impacts are similar to those discussed in the Preferred Alternative over a slightly reduced area.	Same as the Small DWMA A Alternative.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Wildlife: Bighorn Sheep Continued ***From Issue 2: Recovery of the Desert Tortoise***	Additionally, there are five HMPs which afford bighorn sheep protection.	ACECs which include specific prescription to improve habitat conditions.	(See above)	(See Above)
	Cattle grazing potentially impacts bighorn sheep by competing for forage, by altering the vegetation composition, by introducing diseases, by fouling or disrupting water sources, or by causing changes in behavior or habitat use.	Reduced grazing on 36% of allotments will have a positive impact on bighorn sheep by reducing competitive grazing and alternation of vegetation composition.	Impacts are similar to those discussed in the Preferred Alternative but on a large degree because grazing is reduced by 69% overall.	Same as the Preferred Alternative.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Five designated HMPs provide protection and enhancement to bighorn sheep through prescriptions aimed at improving herd size and or habitat. HMPs are generally limited by the Multiple-Use Class designation of the area.	Designating two bighorn sheep WHMAs and an 80% Multi-Species WHMA will have a positive benefit to bighorn sheep through prescriptions aimed at reducing impacts to bighorn sheep and reducing the surface disturbance through acquisition.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Waters are developed on a case-by-case basis	The addition of 87 new water developments will have a positive effect on bighorn sheep by giving access to additional forage more distant from existing waters. With more food and water available, the number of big horn sheep in each deme can be expected to increase.	Same as the Preferred Alternative.	Impacts from developing 21 artificial waters sites outside wilderness would be similar to those described in the Preferred Alternative but would be over a smaller area.
	No addressed.	Closure of some routes near natural or artificial water sources will reduce disturbance of bighorn sheep at critical sites.	Same as the Preferred Alternative.	Same as Preferred Alternative.

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Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Wildlife: **Bighorn Sheep** *From Issue 4: Wild Horses and Burros*	Burro grazing where Appropriate Management Levels are exceeded cause impacts to bighorn sheep by overgrazing forage, damaging water sources, trampling of soil and denudation of vegetation.	Reduction in burro grazing along with management actions to fence water would benefit sheep by reducing negative impacts such as competition for forage, trampling of soil and denudation of vegetation.	Managing for zero burro grazing in all of the Herd Areas will have a slightly greater positive impact to bighorn sheep by eliminating the negative effects discussed in the Preferred Alternative.	Impacts would be similar to those discussed in the Preferred Alternative.
From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation	Bighorn sheep populations are fragmented by numerous highways, roads, railroads, and aqueducts.	Designating routes of travel as "open", "limited", and "closed" will result in a decrease in negative impacts associated with off-road activities, such as habitat degradation, proliferation of roads, harassment of wildlife and road kills.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
Impacts to Wildlife: **Other Special Status Species** ***From Issue 2: Recovery of the Desert Tortoise***	Current management of ACECs, Wilderness, JTNP, CMAGR, and HMPs provide protection to many species.	Designation of 1,684,248 acres of ACECs will provide protection for species through prescriptions aimed as improving habitat and reducing surface disturbing activities.	Impacts to wildlife species are similar to those discussed in the Preferred Alternative over a smaller area (18%).	Same as the Small DWMA A Alternative.
	Surface disturbing projects are evaluated on a case by case basis without a limit. Potential impacts include; surface disturbance on a larger scale, little incentive to direct projects to other less sensitive areas and reduced rehabilitation commitments.	Limiting surface disturbing activities to 1% of the DWMAs will have a positive impact on many species by potentially reducing impacts from habitat reduction	Same as the No Action Alternative.	Impacts from limiting surface disturbance to 3% are similar to those discussed in the Small DWMA A Alternative.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Management of existing ACECs, HMPs, JTNP, CMAGR and Wilderness provide protection for many species and habitats.	Species will have positive benefits from designation of DWMAs and the Multi-species WHMA through prescriptions aimed at reducing surface disturbance, improving natural	Same as the Preferred Alternative.	Positive impacts are similar to those discussed in the Preferred Alternative on a slightly smaller scale.

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Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA	Small DWMA A Alternative	Small DWMA B Alternative
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Not addressed.	Closure of some routes will reduce the amount of habitat subjected to occasional disturbance from vehicles.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
From Issue 4: Wild Horses and Burros	Burros may degrade riparian habitat where they seek water and shade which can have an indirect affect on species of birds.	The negative effects of burros on some special status animals, and burro deer in particular, would be reduced somewhat by the fencing of some of the natural waters.	Elimination of burros from HAs will benefit special status animals by reducing habitat damage, especially in sensitive riparian habitat along the Colorado River and in Desert Dry Wash Woodland, increase forage and cover for wildlife, increase availability of water and allow over-grazed areas to recover.	Impacts are similar to the Preferred Alternative.
From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation	Vehicle use on highways and, to a lesser degree, roadways results in some mortality of wildlife, especially vulnerable or slow moving animals, such as flat-tailed horned lizards and desert rosy boa.	Designating a routes network will result in a decrease in negative impacts associated with off-road activities, such as habitat degradation, proliferation of roads, harassment of wildlife and road kills.	Impacts are similar to the Preferred Alternative.	Impacts are similar to the Preferred Alternative.
Impacts to Wilderness ***From Issue 2: Recovery of the Desert Tortoise***	Management of Category I and II desert tortoise habitat will likely have no effect on, or may benefit wilderness resources to the degree that natural conditions are preserved, and plant and animal diversity is protected.	Actions specific to the recovery of the desert tortoise in the DWMA are not expected to adversely affect wilderness resources. In general, such actions would likely benefit wilderness resources to the degree that natural conditions would be preserved, and plant and animal diversity would be protected.	Impacts are similar to the Preferred Alternative.	Impacts are similar to the Preferred Alternative.
	Not addressed.	Elimination of the Chemehuevi and a portion of the Lazy Daisy allotments would likely enhance natural conditions within portions of the	Impacts are similar to the Preferred Alternative.	Impacts are similar to the Preferred Alternative.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Wilderness ***From Issue 2: Recovery of the Desert Tortoise***	(See above)	Old Woman Mountains , Turtle Mountains and the Chemehuevi Mountains Wilderness areas.	(See above)	(See above)
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Not addressed.	Construction of 22 bighorn sheep guzzlers would not substantially affect the overall natural character of any particular wilderness area. During periods of construction, opportunities for solitude or a primitive type of recreation would be adversely affected.	Impacts are similar to the Preferred Alternative.	Bighorn sheep guzzlers will be developed outside wilderness areas so that the natural character of the wilderness landscape would not be affected, and opportunities for solitude or primitive and unconfined type of recreation would not be constrained by the project.
From Issue 4: Wild Horses and Burros	Continued management of existing Chemehuevi HMA will have no substantial impacts on natural conditions in wilderness areas as long as burros are managed at prescribed levels and in accordance with applicable plans.	Combining the Chemehuevi and Havasu HMAs into one HMA would integrate a substantially larger portion of the Whipple Mountains Wilderness into an area managed for retention of burros.	Managing HA for zero wild horses and burros would alleviate potential impacts to natural conditions if herd level exceed the established AML.	Similar to the Preferred Alternative with the addition of the establishment of the Piute Mountain HMA which will incorporate most of the Piute Mountains Wilderness.
	Continued management of existing Chocolate/Mule Mountains HMA will have no substantial impacts on natural conditions in wilderness areas as long as burros are managed at prescribed levels and in accordance with applicable plans.	Combining historical burros range Chocolate/Mule Mountains HA and Cibola/Trigo HA into one HMA would integrate a substantially larger portion of the Indian Pass, Picacho Peak, and Little Picacho Peak Wildernesses into an area managed for retention of burros.	Managing HA for zero wild horses and burros would alleviate potential impacts to natural conditions if herd level exceed the established AML.	Same as the Preferred Alternative.
From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation	Under this alternative, motorized-vehicle access to wilderness boundaries would be maximized as all "existing" routes would be available for use. When opportunities for such access are maximized, the potential for unauthorized incursions into	Under this alternative, motorized-vehicle access to wilderness boundaries would be somewhat reduced relative to the No Action Alternative with establishment of "washes closed zones" in DWMAs and application of biological	Motorized-vehicle access to wilderness boundaries would be somewhat reduced within DWMAs relative to the Preferred Alternative. As opportunities for access to wilderness boundaries are reduced, the potential for unauthorized	Same as the Small DWMA A Alternative.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Wilderness ***From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation***	wilderness is concomitantly increased.	parameters. As opportunities for access to wilderness boundaries are reduced, the potential for unauthorized incursion into wilderness is concomitantly decreased.	incursions into wilderness is concomitantly decreased.	(See above)
	Straying from the *Johnson Valley to Parker* route into the Sheephole Valley Wilderness and from the *Parker to 400* into the Turtle Mountains could result in degradation of wilderness resources. Additionally, it is reasonable to expect that course widening, short cutting and illegal cross-country travel could occur during future events given the nature of high-speed vehicle racing.	The potential for adverse impacts from the *Johnson Valley to Parker* competitive recreation route include straying from approved race course into the Sheephole Valley Wilderness. The *Parker to 400* competitive recreation route would be deleted thereby avoiding any adverse impacts from potential straying.	Under this alternative, competitive off-highway vehicle events would be prohibited throughout the planning area except in areas designated "open" to motorized-vehicle use. This action could benefit wilderness to the degree that potential straying from approved race courses into designated wilderness would be averted.	Same as the Preferred Alternative.
Impacts to Livestock Grazing Management ***From Issue 1: Standards and Guidelines***	Rangeland health conditions have been assessed for all allotments and except for the West Well in the Chemehuevi allotment, alt standards have been attained. There may be a need for temporary reduction or shifts in grazing activities in small areas for a limited period to restore soil and vegetative conditions.	Adoption of the Regional Standards for Public Land Health and guidelines for grazing management are similar to those discussed under the No Action Alternative.	Adoption of the Regional Standards for Public Land Health and guidelines for grazing management are similar to those discussed under the No Action Alternative.	Adoption of the Regional Standards for Public Land Health and guidelines for grazing management are similar to those discussed under the No Action Alternative.
From Issue 2: Recovery of the Desert Tortoise	Grazing activities have been reviewed through Section 7 consultation process by the USFWS and activities have been mitigated through biological opinions. Range improvements are a necessary component of grazing management to control and care for livestock.	Reducing the size of the Lazy Daisy allotment by 7 percent and decreasing utilization of perennial plants within desert tortoise habitats from 40 to 25 percent will result in an estimated 37 percent reduction of perennial forage in the DWMA. This will result in a reduction of 709 AUMs.	Reducing the size of the Lazy Daisy allotment by 37 percent will result in a loss of 709 AUM. This is a 22 percent reduction in cattle use which is a significant and adverse consequence to the lessee.	Same as the Small DWMA A Alternative.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Livestock Grazing Management ***From Issue 2: Recovery of the Desert Tortoise***	(See above)	The deletion of the Chemehuevi Allotment will result in the elimination of livestock production.	Same as the Preferred Alternative.	The Chemehuevi Allotment is reduced by 27 percent of ephemeral forage, which reduces the AUM by (*). A grazing strategy could directly affect year-long grazing operations about four out of ten years.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Ford Dry Lake and Rice Valley domestic sheep grazing allotments operate under biological opinions issued	With the cancellation of the Ford Dry Lake allotment, potential sheep production would cease. Reduction of the Rice Valley Allotment would impact livestock use along the west and southwest edge of the allotment.	The result of deleting the Ford Dry Lake and the Rice Valley domestic sheep grazing allotments would be a complete removal of livestock production from these areas.	Same as the Preferred Alternative.
Impacts to Wild Horses & Burros ***From Issue 2: Recovery of the Desert Tortoise***	Portions of Chemehuevi and Chocolate/Mule Mountain HMAs overlap portion of designated Category I and II desert tortoise critical habitat. However, the portions where they overlap has low frequency of burro occurrence.	Negative impacts to burros from recovery of the desert tortoise include exclusion from historical burro range and reduction in overall HMA. However, where there has been a boundary adjustment, there is a low frequency of burro occurrence.	This action has the most significant negative impacts to the management of burros in which all burrow would be removed.	Both DWMAs will overlap portions of the proposed Chemehuevi and the Chocolate/Mule Mountains HMAs. However, the portions of overlap have low frequency of use by burros.
	Not addressed.	Elimination of competition between cattle and burros on the Chemehuevi grazing allotment will result in a direct positive benefit to burros through the elimination of forage competition.	Not addressed.	Competition between cattle and burros on the Chemehuevi grazing allotment will continue.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Not addressed.	Fencing one third of the water new water developments may disperse the use of by grazing ungulates of the vegetation resources such that dietary overlap is reduced. Unfenced water developments outside HMAs may expand the burros range.	Direct impacts related to fencing all waters would include: displacement of burros in the area if they aren't removed prior to fencing, and direct mortality from dehydration.	Same as the Preferred Alternative.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Wild Horses & Burros ***From Issue 3: Management of Special Status Animals and Plants and Natural communities***	Working with cooperators to assist in the BLMs mission to mange wild horse and burro herds within their AML and to establish where there are conflicts with species, agencies and other uses.	Bighorn sheep ranges overlap the majority of burro herd areas. Competition for forage in these overlap areas could occur, however burros shall be managed within the established AML which would allocate forage and natural water resources equally among burros and wildlife.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
From Issue 4: Wild Horses and Burros	The current management of overlapping HAs ad HMAs with variant management decisions and prescriptions would result in inefficient management of burros between California and Arizona.	Combining Chemehuevi and Havasu HAs into one HA reduces the area by 336,650 acres and the AML by 42. This alternative maintains one of three current viable wild burro HMAs in the CDD.	Herd Areas would be recognized but HMAs would not be designated for retention and management of either wild horses or burros. Impacts to wild burros would be complete removal through live trappings using helicopter assisted removals or water/bait trapping.	Combining the Chemehuevi and Havasu HAs into one HA and HMA reduces the area by 221,260 acres and maintains the AML of 150 burros.
	The current management of overlapping HAs ad HMAs with variant management decisions and prescriptions would result in inefficient management of burros between California and Arizona.	Combining the Chocolate/Mule Mountains and Cibola/Trigo HAs into one HA reduces the area by 198,602 and the AML by 91 burros.	(See above)	Combining the Chocolate/Mule Mountains and Cibola/Trigo HAs into one HA reduces the area by 147,334 acres ad the AML by 74 burros.
	Manage the Piute Mountain HA for zero burros, removing current population.	Same as the No Action Alternative.	Same as the No Action Alternative.	Managing the Piute Mountain HA reverses the decision from the CDCA Plan not to manage burros in this HA. Requirements to manage this HA may include augmenting the herd with other burros to increase genetic viability and accessing Fenner and Barrel Springs for water

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Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Recreation Use ***From Issue 2: Recovery of the Desert Tortoise***	Route designations, which are applicable principally to casual use, would have little to no effect on access for non-casual purposes.	The network of routes available for casual use as proposed under this alternative—which, in part, is based on actions to recover the desert tortoise including the establishment of "washes closed *zones*" in DWMAs would provide *reasonable* access for both motorized and non-motorized recreational activities. Except for wilderness areas wherein casual motorized-vehicle use is prohibited, recreationists would be able to drive their vehicles within reasonable proximity to most public lands within the Planning Area.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	Where traditional access is limited or precluded consequent to the route designation process, opportunities for stopping, parking, and vehicle camping are also limited or precluded. As all "existing" routes would be available for use under this alternative, except for "non-routes" and "partial non-routes," opportunities for these activities would not be further constrained.	Same as the No Action Alternative with the exception of the distance is measured from the center line of the road versus the edge of the road (100 feet).	Restricting stopping and parking to 30 feet from centerline of an approved route in DWMAs would minimally affect opportunities for recreation. As a common practice, vehicles generally pull off the road to stop and park no more than the proposed limitation except when a feature of interest might be further away.	Limiting stopping, parking and vehicle camping to within 300 feet of route centerline in DWMAs enhances opportunities for these activities.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	No additional criteria are proposed for the management of special status animals and plants and natural communities, therefore adverse impacts to recreation are not anticipated.	Closure of some routes due to proximity to sensitive species would result in minor impacts to vehicular access and, therefore to recreation.	Same as the Preferred Alternative.	Same as the Preferred Alternative.

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Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Recreation Use ***From Issue 3: Management of Special Status Animals and Plants and Natural communities***	Not addressed.	Under this alternative, the area designations of Ford Dry Lake and Rice Valley Dunes would be changed to preclude vehicular "free-play". This will have little impact on OHV enthusiasts due to the low level of use at both areas.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation	Adverse impacts to such recreational endeavors as competitive vehicle events are considered negligible.	Elimination of the *Parker to 400* corridor would result in no adverse impacts to recreational opportunities because the race has not been run in over a decade and interest is no longer being expressed.	Same as the Preferred Alternative.	Same as the Preferred Alternative.
	This alternative provides for the *Johnson Valley to Parker* corridor in accordance with conditions prescribed in the CDCA Plan and the *Johnson Valley to Parker EIS* (1980).	Same as the No Action Alternative with the except there would be additional conditions imposed on the race that could cause the application process to be extended.	Elimination of the *Johnson Valley to Parker* would adversely affect opportunities for competitive off-highway vehicle events only if interest recently expressed to rekindle the event is expressed in the form of an application to the BLM for a special recreational permit.	Impacts are slightly less restrictive than those under the Preferred Alternative.
Impacts to Motor Vehicle Access ***From Issue 2: Recovery of the Desert Tortoise***	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.

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Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Motor Vehicle Access ***From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation***	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.	Impacts that affect casual motorized-vehicle access are described under *Issue 2*, Recreation Management.
Impacts to Mineral Development ***From Issue 2: Recovery of the Desert Tortoise***	There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.	Compensation requirements would be simplified to one formula but would increase for small operations and would possibly reduce for a few large operations. In areas where MUC M changes to MUC L casual use would be subject to more costly and time-consuming plans of operations and NEPA review.	There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place, but smaller DWMAs would mean that fewer acres would be subject to described affects.	There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.
	Not addressed.	Nearly all operations would benefit from the authorization streamlining of the 100 acres programmatic plan consultation with the U.S. Fish and Wildlife Service. Requiring a performance bond and performance standards for reclamation would increase the cost for all surface-disturbing operations regardless of size.	There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place, but smaller DWMAs would mean that fewer acres would be subject to described affects.	There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.	Minerals operations in WHMAs could be subject to a variety of small scale surveys, mitigation, compensation, and reclamation requirements that could result in a slight increase in the cost of operation and shutdown of operations.	Same as the No Action Alternative.	Impacts are similar to those described in the Preferred Alternative, however the WHMAs are smaller therefore, mitigation, compensation and reclamation requirements would be over a smaller area.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Mineral Development ***From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation***	There would be a slight loss of access from closing non-routes which could affect casual mining activity.	Same as the No Action Alternative.	Access in DWMAs would be considerably more reduced, having a greater affect on casual mining activity and creating more instances of access authorizations.	Access in DWMAs would be considerably more reduced, having a greater affect on casual mining activity and creating more instances of access authorizations; however, outside DWMAs access network would increase to nearly the extent of the No Action Alternative and reduce the need for access authorizations.
From Issue 6: Land Ownership Pattern	Some simplification of the checkerboard ownership pattern is occurring in tortoise critical habitat which could simplify legal aspects of mining rights in these areas.	Consolidations of land ownership could be a beneficial in that access and operations involving single, uncomplicated ownership patterns could simplify legal aspects of mining rights as long as surface and mineral estates were not split	Extended periods of time may be required to complete acquisition goals as there would be fewer acres in higher priority DWMAs and more acres in lower priority WHMAs.	There would be no essential change from the Preferred Alternative except that acquisitions/ownership consolidations would cover less area (50% conservation zone goal).
Impacts to Lands and Land Use Authorization ***From Issue 2: Recovery of the Desert Tortoise***	Under this alternative there would be little change to the current management practices of processing for land use application. Applicable mitigation measures and compensation are currently required for new impacts to desert tortoises and its habitat according to current policy.	Compensation requirement would be simplified to one formula, but would increase for small actions that would have had been guided by less than 5:1 ratio and possibly reduce for the few very large operations that would have met a 6:1 ratio requirement.	Impacts are similar to those described in the Preferred Alternative but smaller DWMAs would mean that fewer acres would be subject to described affects.	Same as the Small DWMA A Alternative but a 3% surface disturbance limit would result in fewer negative discretionary decisions for lands actions requests over time or that the threshold would actually be reaches.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Under this alternative there would be little change to the current management practices of processing application for utilities and other rights-of-way. Habitat protection for special status species will continue to help define design and mitigation requirements for lands actions.	Lands actions proposals in WHMAs could be subject to a variety of small scale surveys, mitigation, compensation, and reclamation requirements that could result in a slight increase in the cost of operation and shutdown of operations.	Same as the Preferred Alternative.	Same as the Preferred Alternative with the exception that there would be fewer acres in the WHMAs so there would be lower mitigation, compensation, and reclamation requirements implications.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Lands and Land Use Authorization ***From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation***	There would be a slight loss of access from closing non-routes which could affect access to some private lands.	There would be not additional impacts here from the No Action Alternative.	Access in DWMAs would be considerably more reduced, having a greater affect on casual access to private lands and various right-of-way.	While access in DWMAs would be considerable more reduced, the access network outside DWMAs would be increased to nearly the same network as in the No Action Alternative. This could possibly reduce the need for access authorizations to private lands.
From Issue 6: Land Ownership Pattern	Some simplifications of the checkerboard ownership pattern is occurring in tortoise critical habitat which could simplify legal aspects of lands actions which currently cross mixtures of public and private lands.	Consolidations of land ownership is greater than in the No Action Alternative and could be even more beneficial to land actions where there are single, uncomplicated ownership patterns.	There would be no essential change from the Preferred Alternative other than it may require a longer period of time to complete acquisition goals in this alternative as there would be fewer acres in higher priority DWMAs and more acres in lower priority WHMAs.	There would be no essential change from the Small DWMA A Alterntive except that the acquisitions/ownership consolidations target area is reduced (50% conservation zone goal).
Impacts to Socio-economic ***From Issue 2: Recovery of the Desert Tortoise***	Developments proposed in Lazy Daisy Allotment would impact the lessee by increased coordination and cost associated with installation of improvements.	Reduction of acreage in the Lazy Daisy Allotment would not significantly affect grazing operations due to the ephemeral production of the area.	Loss of the northeast portion Lazy Daisy Allotment, and cancellation of ephemeral grazing use would directly impact livestock production on 148,927 acres. Based on past use, impacts to Lazy Daisy Allotment appear minor. The potential voluntarily relinquishment by the lessee of all grazing use in Lazy Daisy Allotment has no effect until activated. After the lessee requests relinquishment, cattle production would cease on 470,207 acres.	Impacts are the same as the Small DWMA A Alternative.

Table S-2 Cumulative Summary of Alternative Impacts

Impact Topic	No Action Alternative	Preferred/Large DWMA Alternative	Small DWMA A Alternative	Small DWMA B Alternative
Impacts to Socio-economic ***From Issue 2: Recovery of the Desert Tortoise***	Current, socio-economic impacts to lessees that lease the Chemehuevi Allotment would not change.	Cancellation of the Chemehuevi Allotment would directly impact livestock production. Cancellation of Chemehuevi Allotment would preclude potential production of livestock.	Same as the Preferred Alternative.	Reducing the Chemehuevi allotment by 37 percent would not be a loss of perennial AUMs because this is an ephemeral allotment, there would be substantial impact to management flexibility. The consequence of this reduction would make the grazing season so short and cattle numbers so low that economic benefits would be marginal.
From Issue 3: Management of Special Status Animals and Plants and Natural communities	Current, socio-economic impacts to lessees that lease the Rice Valley and Ford Dry Lake Allotments would not change.	Deleting Ford Dry Lake Allotment would have a negative impact on the grazing operator by eliminating the economic benefit from potential sheep production. The economic impact would be minimal because the allotment is rarely grazed.	Deleting Rice Valley Sheep allotment would have a negative impact on the grazing operator by eliminating the economic benefit from sheep operations. The economic impact would be minimal however, because the allotment is ephemeral and is only grazed in years when forage production is greater than 350 pounds-per-acre.	Same as the Small DWMA A Alternative.
From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation	The closing of routes that would add to routes already closed through the CDPA in 1994 would bring the total roads closed to about 18%. This would have a minor affect upon casual use access and recreation.	Designating routes as "open", "closed" or "limited" will not significantly affect traffic patterns. Less than 5% of inventoried routes are proposed for closure and wash-closed zones will have little to no significant soci-economic affect on the human component.	Same as the Preferred Alternative.	Same as the Preferred Alternative.

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Chapter 1 Introduction

This document consists of a draft environmental impact statement (EIS) analyzing the effects of proposed management actions and alternatives for the Planning Area of the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO). The draft EIS has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (40 CFR 1500).

1.1 Purpose, Need and Scope

The primary purpose of this EIS is to amend or create land use plans and specific management prescriptions for species and habitats on Federal lands, providing in particular for the recovery of the desert tortoise. Plans to be amended include the Bureau of Land Management (BLM) 1980 California Desert Conservation Area (CDCA) Plan, the BLM 1987 Yuma District Resource Management Plan for wild horse and burro management only and the Joshua Tree National Park (JTNP) General Management Plan. The applicable portion of NECO will serve as the basis for resource management plan for the Chocolate Mountains Aerial Gunnery Range (CMAGR), as required by Title VIII in the 1994 California Desert Protection Act. CMAGR is managed by the U.S. Marine Corps Air Station, Yuma (USMC).

The desert tortoise was listed in 1990 as a threatened species under the Federal Endangered Species Act. By law, land managing agencies are required to review their current land use plans, adjust them as necessary, and consult on their adequacy with the U.S. Fish and Wildlife Service (USFWS). USFWS will then issue a *biological opinion* on plan adequacy. In 1994 the USFWS designated *critical habitat* for the desert tortoise. Critical habitat comprises about 42% of the NECO Planning Area and, along with desert tortoise habitat in JTNP, comprises significant portions of lands managed by BLM, CMAGR and JTNP. In 1994 the FWS issued the Desert Tortoise (Mojave Population) Recovery Plan which provides recommendations for land planning and tortoise management; these recommendations are an important consideration in developing NECO.

Special status species include all State and Federally listed threatened and endangered species and other species given special attention by agencies. The latter is made up of species designated as *sensitive* by the BLM in California, candidate and species of special concern by USFWS, and species of special concern by the California Department of Fish and Game (CDFG). Given the complex relationship among species and their habitats, the increasing number of species listings over the past several years, and the prospect of more listings, it is convenient, logical, and even prudent to broaden the scope of the plan to a multiple species/habitats level. A complex *ecosystem* approach offers the best opportunity to arrest the decline in biodiversity and eliminate or minimize the need for further listings.

Hand in hand with the biodiversity approach is the need for agencies to coordinate planning and management actions. While species and habitats cross the boundaries and regulatory responsibilities of many agencies, historically agencies have not coordinated land management on a strategic or landscape basis. Despite the well meaning efforts of all parties there has been little assurance that biodiversity declines will stabilize and reverse and the species will persist. Therefore, one of the fundamental needs for the Planning Area has been to accomplish the plan on a cooperative basis. The cooperating agencies include the three Federal land managing agencies (BLM, NPS, USMC) plus a number of other local, state, and Federal agencies. Among the more involved non-land managing agencies are USFWS, CDFG and the counties of San Bernardino, Riverside, and Imperial. Several non-governmental interests have been involved as well.

To aid cooperative implementation of the plan for such tasks as habitat management actions and monitoring for all special status species and natural communities, this plan will also be developed as a Sikes Act Plan in cooperation with CDFG under the authorities of the Federal Land Policy and Management Act of 1976 (P.L. 94-579) and the Sikes Act, Title II (P.L. 93-452 and P.L. 95-420) and the Master Memorandum of Understanding (MOU) between BLM and CDFG to cooperatively prepare comprehensive wildlife habitat management plans. The Sikes Act authorizes BLM to develop and implement plans in cooperation with state fish and game departments for the development and protection of wildlife habitat. It authorizes the preparation of MOUs for the transfer of funds between agencies for the completion of projects, inventories, studies, and other programs. It is BLM policy that whenever possible, habitat management plans are developed in full cooperation with state agencies under Sikes Act authority. The Master MOU affirms that to the maximum extent possible, wildlife activity plans will be cooperatively developed as Sikes Act plans.

Another purpose is to implement the "Rangeland Reform 94" initiative to improve ecological conditions while providing for sustainable development and uses on public lands. While this program is a BLM initiative, the standards by which ecological health will be measured will help define the goal for planning and coordination across agencies boundaries as noted above.

There are two major features of this initiative. One is to develop and adopt a set of Standards or goals which define the characteristics of healthy ecosystems. These standards have in essence been a part of land management practices but were never defined in so many words. Measurements to determine how well standards are being met are also defined. The other major feature is to develop Guidelines for managing domestic livestock operations to help meet the Standards for the areas managed under grazing lease. BLM's Desert Advisory Council has been instrumental in helping to develop the Standards and Guidelines for the California Desert District. While this initiative applies to BLM-managed lands, the adopted Standards will be used to guide the development of this plan and measure the effectiveness of land management for all Federal lands. For more on this subject, refer to Appendix B.

A final purpose is to incorporate land use designations contained in the 1994 California Desert Protection Act into the CDCA Plan.

Plan management and decisions apply only to Federal lands. The plan is not a habitat conservation plan (HCP) covering private lands. Private lands may be indirectly affected, however, through nexus with Federal lands and from land acquisition/disposal initiatives. Conversely, over many year's period, some land uses proposed for private lands adjacent to public (i.e., federal and state) lands could have significant effects on public lands and reduce the effectiveness of public land management. Such actions include ground water pumping and landfills. While it is beyond the scope of NECO to address use of private lands, an attempt is made to identify how some adjacent land uses could create public land management issues and "red flag" them for land managers to articulate and ask for objective review through CEQA.

This plan creates an overall framework for managing and allocating public land resources and uses in the Planning Area for a number of years. The effective life varies by plan aspect - e.g., management needs for various species, data and models reliability, and assumptions about the future - so no one number of years is identified. For instance, goals and objectives for species and habitats are more or less permanent while recovery of the desert tortoise could take a hundred or more years. The need for management areas and the suite of proposals for them, therefore has long-term application. Some data are rather complete and others are not. Much of the plan is based upon models which can change as data are improved or conditions and uses change. It may be necessary to amend the plan at a later date, due to unforseen events (e.g., an increase in the list of special status species, more listings under state or Federal endangered species acts, a change in mission or major land uses on BLM or CMAGR Federal lands). With this in mind we should consider the plan as ever changing - different rates and milestones and priorities for different aspects. A proposed action common to all alternatives is that the NECO cooperators meet annually to address many subjects, including the application of all parts of the plan and act to update and change parts accordingly.

This draft EIS analyzes four alternatives; No Action- Current Management, the Preferred/Large DWMA Alternative, Small DWMA A Alternative and Small DWMA B Alternative. This draft EIS has been prepared for the draft NECO plan and alternatives in order to comply with the NEPA of 1969. NEPA requires Federal agencies to prepare statements documenting environmental consequences of Federal actions significantly affecting the human environment. An amendment to the CDCA plan qualifies as a significant action and thus requires the preparation of an EIS.

1.2 Planning Area

The Planning Area amounts to about 5 percent of California and is located in the southeast corner of the State (Map 1-1 Appendix A). Specifically, starting from the City of Needles on I-40, the NECO boundary[1] runs south along the CDCA boundary, parallel to the Colorado River, to the Quechon Indian Reservation near Yuma, AZ. (Note that the Colorado River, the state line, is not the boundary.) The boundary skirts the reservation to the All American Canal near the International border. The boundary follows the All American Canal to I-8, east to Ogilby Road, and then north on Ogilby Road to its intersection with the Southern Pacific Railroad. The boundary then runs north along the Railroad to its intersection with the western boundary of the CMAGR, then along CMAGR western boundary to its intersection with the Coachella Canal. The boundary runs north along the east side of the Canal to its intersection with Dillon Road in Coachella Valley, then north along Dillon Road to its intersection with the western boundary of T4S R8E, then north along this line to its intersection with the southern boundary of JTNP. At this point the Plan boundary runs east and north on a zigzagging course following section lines through and to the northern boundary of JTNP. The NECO boundary roughly splits JTNP into two equal west-east halves. The NECO boundary then runs east along the northern boundary of JTNP to a point where it turns north and away from JTNP along the east side of T1S R13E. North of this township the boundary zigzags northwest along section lines through the Sheep Hole Mountains to Amboy Road at Sheep Hole Pass. At this point the boundary runs north along Amboy Road to its intersection with Historic Route 66 near Amboy, runs east on this highway to the Kelbaker Road, then north on the Kelbaker Road to its intersection with I-40. At this point the boundary runs east to Needles (Map 1-2 Appendix A).

The NECO Planning Area comprises 5,547,665acres of private, Federal and state land. The majority of the Planning Area land is public land, with a total of 3,823,194 acres (Fig. 1-2). Three Federal agencies manage 86% of the 5.5 million acres of the Planning Area (Map 1-3 Appendix A). Each of the three Federal land managing agencies has land use plans or programs which generally provide a zoning approach to management with goals and allowable uses and prescriptions. These plans and programs are described in section 1.6.

1.3 Planning Process Description

The planning process (Fig. 1-1) for this EIS began in March 1994 with a series of public scoping meetings.

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[1] Where the boundary is a demographic feature, the exact boundary will be the centerline of the feature.

During this process, six planning issues were identified by the public:

- Recovery of the Desert Tortoise
- Management of Special Status Plants and Animals and Natural Communities
- Designation of Routes of Travel
- Land Ownership Pattern
- Access to Resources for Economic/Social needs
- Management of Wild Horses and Burros

Two additional issues, maintenance of the CDCA Plan and standards and guidelines, were added later in the planning process.

1.4 Planning Schedule

The planning process will conclude in 2001 with the completion of the record of decision and follows this approximate schedule:

February 15, 2001
Draft Plan/EIS mailed to public, and placed in selected libraries, and offices of BLM and other cooperating agencies.
February 15, 2001
EPA/BLM published FR Notice and the 90- day public review period begins.
March 15 April 15 2001
Public meetings on Draft Plan/EIS.
May 15, 2001
End 90-day public review period.
August 15, 2001
Proposed Plan/EIS mailed out to public.
August 15, 2001
EPA/BLM published FR Notice and 30-day public protest period begins.
September 15, 2001
End 30-day public protest period.
October 15, 2001
End Governor's consistency review period. Sign Record of Decision.

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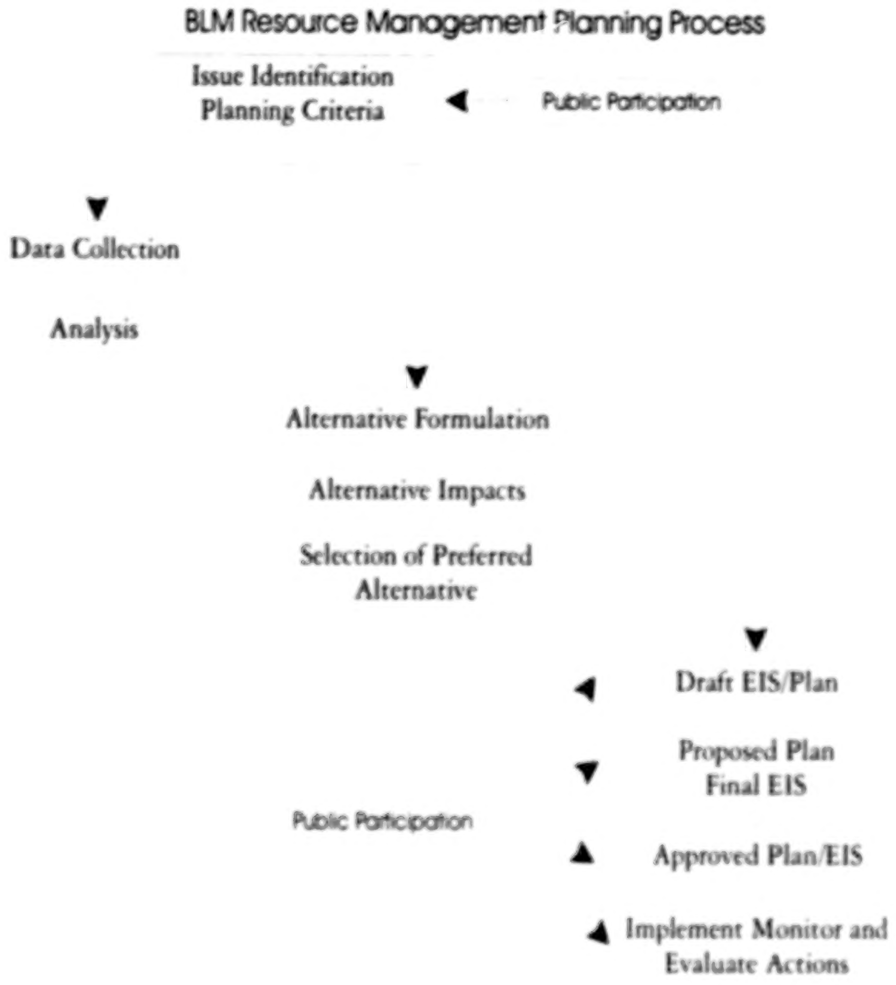
Figure 1-1 Northern and Eastern Colorado Desert Planning Process



1.5 Planning Issues and Criteria

The NECO plan defines and addresses the issues shown on Table 1-1 as identified by BLM, other agencies, and the public. Livestock grazing is addressed in the first three issue sections in Table 1-1.

Table 1-1 Summary of Significant Management Issues and Actions

Issue	General Management Action
Standards and Guidelines	Adopt rangeland Standards for managing ecosystem health and Guidelines for managing domestic livestock uses
Recovery of the Desert Tortoise	Identify areas and develop management prescriptions for each recovery unit identified in the U.S. Fish and Wildlife Desert Tortoise Recovery Plan
Management of Special Status Plants and Animals and Natural Communities	Develop a strategic framework of areas and prescriptions for managing species and habitats
Management of Wild Horses and Burros	Identify areas and management prescriptions for wild burros that achieves the goals of the Wild Horse and Burro Act, the conservation of native species and habitats, and mandates of a variety of affected agencies
Designation of Routes of Travel	Designate a system of routes on Federal lands that is commensurate with the conservation of species and habitats and needs for general and special purpose public access
Land Ownership Pattern [1]	Identify public lands managed by BLM and private lands that are suitable for change in ownership to enhance the manageability of public lands for conservation and other public purposes and development of private lands for community and other private purposes
Resource Access/Regulatory Burden	Provide access to or through BLM-administered lands for public and private economic and recreation uses. Provide regulatory relief for projects in the land use plan.
Maintenance of CDCA Plan	Amend the CDCA Plan of 1980 to incorporate wilderness and other designations passed by Congress in the California Desert Protection Act of 1994.

[1] Since the 1994 Public Scoping meetings, this issue have been dramatically reduced for both BLM (in tortoise habitat and wilderness areas) and Joshua Tree National Park through the acquisition of over 140, 000 acres of lands previously belonging to Catellus, Inc and the State of California (State Lands Commission).

Planning Criteria are the rules and other factors used to form judgements about data collection, analysis, and decisions making during planning. Planning criteria for the Plan include all applicable Federal laws, regulations, executive orders, policies and applicable portions of existing land use plan, which the cooperating agencies are required to follow. One highlighed feature of these is the fact that the planning unit lies entirely within the California Desert Conservation Area, which was established by Congress in 1976. Some of the planning criteria, however, were specifically developed for the NECO planning effort. These planning criteria are listed below. Many have been reviewed by the public at various points in the planning process.

Cooperate with Local, State, and Federal Agencies

1. Develop the planning process, data, analyses, and decisions on a cooperative basis for the recovery of the desert tortoise and the conservation of other species and habitats on Federal lands, particularly for those species and habitats which are managed in common, among the following Federal land managing agencies: the Bureau of Land Management, Joshua Tree National Park, and the U.S. Marine Corps Air Station (for the Chocolate Mountains Aerial Gunnery Range).

2. Federal agencies noted above should cooperate with Local, State and Federal land managing and regulating agencies, major private land owners, and leaders of conservation and use interest groups in and adjacent to the Planning Area to define and develop the planning process, data, and analyses and for support of realistic, acceptable, cost effective, and manageable plan decisions.

3. Evaluate the need or opportunity for plan decisions to apply to state and private lands. If the need is not compelling, work with Local and State agencies as noted above and to allow plan decisions to be useful for state and local land use decisions and initiatives to seek Section 10A permits from the U.S. Fish & Wildlife Service under the Federal Endangered Species Act.

Species, Habitats, and Ecological Processes

1. The desert tortoise and Coachella Valley Milkvetch are the two species in the Planning Area that are Federally listed (threatened) under the Federal Endangered Species Act. Using recommendations contained in the Desert Tortoise Recovery Plan, other documents and data on the desert tortoise and various land uses, establish Desert Wildlife Management Areas (DWMAs) and guidelines for the desert tortoise that will provide for the recovery of the species. Similarly, establish management guidelines to protect the Coachella Valley Milkvetch.

2. Identify additional wildlife and plant species of concern for which management should be specifically addressed.

3. Conduct inventories, with a focus on developing and evaluating a map of plant communities upon which many conclusions about the nature of species and habitats may be based, including predicted occurrence of plant and wildlife species of concern.

4. Where data on the occurrence of species of concern is incomplete, develop species/habitat relationship models to provide better understanding about their probable distribution and relationships to habitats.

5. Identify the ecological processes that determine the occurrence and abundance of species and habitats and that should receive management emphasis.

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6. Analyze the distribution of biological resources with current management and information about actual and potential uses to determine conflicts.
7. Identify areas where protection of species and habitats should be emphasized and areas where protection emphasis is less important. Develop management guidelines for these areas.

8. Following the direction contained in BLM Instruction Memorandum CA 97-31 identify areas that are representative of plant communities that can be designated as Research Natural Areas.

9. Articulate new guidelines for managing ecosystems in terms of species, habitats, or ecological processes using BLM's Rangeland Standards for Public Lands Health as a guide.

General Resource Uses

Collect information on current resource management, resource uses, and access needs to reflect management in place and the variety and relative importance of uses and needs. The information will be used as a consideration in developing the range of conservation emphases noted above. New use restrictions and requirements will add to/change as necessary current management and will vary with location according to biological and use values and sensitivities.

Routes of Travel

1. Thoroughly and accurately inventory all the routes of travel (roads) within the Planning Area and attribute them with various information: e.g., access purpose, recreation touring, county maintained, surface type).

2. Inventory wash systems where washes are used as routes of travel.

3. Identify a network of routes that will continue to provide for access and recreation needs but will also be compatible with conservation goals noted above. On BLM lands designate routes as open, closed, or limited to use as required by the California Desert Conservation Area Plan of 1980. Extend decisions to washes systems.

4. The consideration of closing or limiting use of routes will require conflict analyses to show conservation issues with specific routes or groups of routes. Justification of purpose or need will not be required where the occurrence of routes is not an issue.

5. Identify appropriate management techniques for key areas of designated routes to best meet the goals and needs for conservation and uses. Consider such tools as providing on-site information and education, signs, ranger patrol priority, and the inclusion or exclusion on maps.

Wild Burros

Wild burros along the Colorado River roam across lands administered by a number of state and Federal agencies, including BLM lands administered by offices in both California and Arizona. These burros also roam back and forth across the eastern planning boundary. BLM is the responsible agency for managing wild burros. Currently the BLM offices in California and Arizona have separate management plans and activities. This situation does not provide for effective decision making and management. Therefore, data collection, analyses, and decisions that affect wild burros along the Colorado River should be approached on a cooperative basis among the California and Arizona BLM offices, and other affected agencies, and include the area east of the eastern Planning Area boundary in which these burros occur.

Land Tenure Adjustment and Use Authorizations

1. Identify the need for acquisition of private and State Land Commission lands or access to improve the effectiveness of managing areas where protection of species and habitats should be emphasized. Focus on the areas of "checkerboard" land pattern.

2. Inventory private lands for "ownership density" (i.e., number of owners per section). Areas of dense ownership may not be practical for acquisition.

3. Identify those BLM lands which are too isolated or too small to be effectively managed or lands of low resource value and which should be made available for disposal, especially through exchange, to improve the efficiency of land management and provide for private economic opportunities.

4. As much as possible, accomplish land tenure adjustments through land exchanges.

5. Develop general descriptions of operation and maintenance practices for powering and pipeline transmission lines and plan decisions needed to modify operation and maintenance practices for the desert tortoise to generally meet the need to address recovery plus provide a basis for utility companies to directly seek Section 10A permits from the U.S. Fish & Wildlife Service for these practices after the plan is completed.

Other maintenance needed for the 1980 California Desert Conservation Area Plan as a result of the passage of the 1994 California Desert Protection Act

1. Incorporate wilderness designations into the Plan.

2. Re-designate Multiple Use Class C areas that were not included wilderness designations to other appropriate multiple use class(es).

1.6 Relationship To Other Documents

Bureau of Land Management

The goals of the California Desert Conservation Area Plan (CDCA Plan), which covers BLM-managed public lands throughout the California Desert, are defined and achieved through management and program actions and resolution of conflicts. The Plan provides overall direction through four major *multiple-use classes* (MUC): Controlled Use (C) for wilderness areas, Limited Use (L), Moderate Use (M), and Intensive Use (I). Further plan direction - both "programmatic" and on the ground allocations - is included in "plan elements" for such programs as utilities, mining, domestic livestock grazing and specie/habitat protection. Areas of Critical Environmental Concern (ACECs) and Wildlife Habitat Management Areas (HMAs) were designated for further development of site-specific conservation management actions.

The CDCA Plan is an adaptive plan which has been amended numerous times over the past 17 years.

Additionally, in October 1994, Congress passed the Desert Protection Act, which designated *wilderness areas* for the California Desert.

Joshua Tree National Park
Management of JTNP is defined in a *General Management Plan* (HMP) that was completed in 1994. A HMP amendment, the *Back country* and *Wilderness Management Plan*, was completed in 1999 to bring the HMP up to date with provisions of the California Desert Protection Act.

The purpose of the HMP is to define the overall preservation and use management strategy for resources within the Park. This is approached through management zoning for all lands. Management zoning determines how specific lands in the JTNP are to be managed to protect resources - including species and habitats - and provide for visitor enjoyment. Four zone classifications are used: Natural, Historic, Development, and Special Use. Within each zone, subzones may be designated to allow for particular management needs. Some activity or implementation plans have also been developed for specific resources.

Chocolate Mountains Aerial Gunnery Range
Management of CMAGR for military uses and natural resource management is the responsibility of the Marine Corps Air Station, Yuma (USMC). There is no plan in place for managing natural resources on CMAGR, but current management is described in USMC's Draft EIS for the Yuma Training Range Complex (USMC 1995). In addition, Title VIII of the 1994 California Desert Protection Act requires the Secretaries of Interior and Defense to jointly develop a resource management plan, with management oversight by Interior, for natural resources for the CMAGR. With USMC as a cooperator in the development of the NECO Plan, the USMC will adopt applicable provisions as its resource management plan.

1.7 Current Planning in the Region

Besides the plans noted above, the following are currently in progress (Map 1-4 Appendix A). Consistency coordination is occurring among them depending upon issue commonality.

West Mojave Plan
Lead by BLM, this plan addresses recovery of the desert tortoise and management of a number of other special status species in the western Mojave Desert. The Planning Area is about twice the size of NECO and joins NECO from southern JTNP to Amboy. As with NECO, this plan will amend the CDCA Plan. The plan is also being cooperatively developed by Federal, state, and local agencies and will result in the adoption of a habitat conservation plan to address listed species on private lands.

Northern and Eastern Mojave Plan
Also lead by BLM, this plan addresses recovery of the desert tortoise and management of a few additional species of concern in the area that generally lies between Death Valley National Park and the Mojave National Preserve. The southern boundary of the Planning Area is adjacent to NECO, the separation being I-40. This plan will also amend the CDCA Plan but, as with NECO, only addresses Federal lands. The southern boundary of the Planning Area is adjacent to NECO, the separation being I-40. Extensive areas of desert tortoise habitat lie in both Planning Areas on both sides of I-40.

Coachella Valley Multiple Species Conservation Plan
The lead for this plan is the Coachella Valley Association of Governments. The Planning Area includes most

of the urban and urbanizing area of the Coachella Valley as well as the Santa Rosa Mountains - all only within Riverside County. The plan is primarily addressing issues of urbanization, but, as the area is within the CDCA, some decisions will also amend the CDCA Plan and are covered by the same concern for consistency as noted above. The plan will serve as a habitat conservation plan so decisions will apply to Federal, state, and private lands. The eastern edge of the Planning Area overlaps the NECO Planning Area by about 55,00 acres and will require considerable coordination in developing decisions. It is anticipated that the NECO Plan will be completed first. Even though a considerable amount of plan-plan coordination is occurring, to achieve congruity of decisions for both plans for the area of plans overlap, some NECO decisions may require amending in order to complete the Coachella Valley MSCP.

General Management Plan - Mojave National Preserve

The lead for this plan is the National Park Service, Mojave National Preserve. The goal of the plan is to define the overall preservation and use management strategy for resources - including species and habitats - within the Preserve, which was created in 1994 by the CDPA. A considerable area of the Preserve is desert tortoise habitat. Subsequent to the General Management Plan specific activity or implementation plans will follow. The southern boundary of the Planning Area is adjacent to NECO, the separation being I-40. Extensive areas of desert tortoise habitat lie in both Planning Areas on both sides of I-40.

Lower Colorado River MSCP

The lead for this plan is the Bureau of Reclamation, U.S. Fish & Wildlife Service, and the Metropolitan Water District of Southern California but is being cooperatively developed by a large group of agencies and interests. The Planning area encompasses that section of the Colorado River between glen Canyon Dam in Arizona and Mexico and between the 100 year flood plain lines on either side of the river. The scope of the plan is two fold: 1) ecosystem management with a focus on federal and state listed threatened/endangered species; and 2) water and power production.

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Chapter 2 - Alternatives

Alternative Elements

Four land use management alternatives have been developed for Federal lands in the NECO Planning Area. These are listed and described below and throughout Chapter 2. Management for some of the resources in the alternatives would not differ from current management.

Alternatives are organized by the eight issues: standards and guidelines, recovery of the desert tortoise, management of other special status animals and plants and natural communities, wild horses and burros, motorized-vehicle access/routes of travel designations/recreation, land ownership pattern, access to resources for economic and social needs and maintenance of the CDCA Plan. The issue of access to resources is addressed in the combination of proposals described for the other issue categories.

Each issue is further organized by goals, objectives and proposed actions. Goals and objectives form the basis for resolving issues and are constant through the array of alternatives. Achieving goals and objectives would be accomplished through implementation of proposed actions. The proposed actions are the substance of the plan for which decisions will be made in the Record of Decision document at the end of the planning process.

Actions which are common to all or most alternatives within each issue section are grouped together at the beginning of each issue section while those actions which are new proposals are labeled **Action**. Those which reflect current management are indicated with a **CM** and those which are referred to elsewhere in the document for full description are indicated with **REF**.

Alternatives

Four alternatives were developed for this management area. They provide decision makers with a range of realistic and distinct options relating to the eight scoping issues.

1. No Action -Current Management

This alternative describes existing resource conditions with current management practices and present land use allocations. Included are many decisions previously made but not implemented.

2. Preferred/Large DWMA Alternative

This alternative provides for managing public lands using strong conservation measures to provide for recovery of the desert tortoise with an emphasis on ecosystem management while balancing for multiple-uses.

3. Small DWMA A Alternative

This alternative provides for managing public lands for recovery of the desert tortoise through recommendations contained in the *Tortoise Recovery Plan* and with general emphasis on conserving biodiversity and non-consumptive uses.

4. Small DWMA B Alternative

This alterative provides for managing public lands with a reduced emphasis on ecosystem

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management and increased emphasis on multiple use of public resources while still providing for recovery of the desert tortoise.

Vision and Concept for Shared Ecosystems Conservation and Use

Each local, state, and Federal agency and public interest with a stake in the Plan has a mandate, or vision, or an influence related to the conservation of desert ecosystems. The three Federal land-managing agencies, in particular, have very different mission mandates: multiple-use (BLM), preservation (JTNP), and military training (USMC). Visions and mandates for this planning area are well-stated in existing land use plans, laws, and issue positions. The important and unique task in producing this Plan was to search for synthesis of mandates and interests - to determine the nature and extent that agencies and interests shared desert ecosystems in common and, by this nature, also shared in their conservation? The difficult search for land management common ground defined the planning process. While a definitive common vision never was articulated during the planning process, and all stakeholders were not unanimous in their support for the details of proposals which follow, some fundamental points of ecosystem conservation and human use did evolve and suggest that overall management should:

a. *conform to Standards for Public Land Health which would provide for the recovery of the desert tortoise and eliminate the need for more listings of species under state and Federal endangered species acts,*
b. *meet as much as possible the arrayed needs for human economic and social pursuits as defined by administrative mandate and articulated interest,*
c. *impose as little additional restriction and expense burden as possible, and*
d. *include large areas of conservation to best allow for both the stresses of nature (on fragile desert ecosystems) and allowable human uses.*

Alternatives included in the Plan describe an array of existing and new conservation areas or zones and prescriptions that address the conservation points noted above. In reading the Plan the reader should keep in mind the above points and the following hierarchical zones for conservation and use:

(a) **Existing restricted areas** - include all JTNP lands, non-target CMAGR lands, and BLM wilderness lands. Many uses and mechanical equipment are restricted, primarily by law. They are fixed and not negotiable. They provide a considerably high degree of protection and preservation of species and habitats, but alone they do not address ecosystem management on an overall basis. They provide the foundation for species and habitats conservation.

(b) **Proposed Desert Wildlife Management Areas (DWMAs)** - address the recovery of the desert tortoise. These are stand-alone areas which cover much of currently designated critical habitat. As such they may and do overlap some existing restricted areas. On BLM and CMAGR lands DWMAs are designated areas of critical environmental concern (ACEC). Some additional use restrictions are proposed, but emphasis is placed on minimizing disturbance and maximizing mitigation, compensation, and restoration from authorized allowable uses.

(c) **Proposed Wildlife Habitat Management Areas (WHMAs)** - address other special status species and habitats management. Two kinds are proposed: one for bighorn sheep, one for all other special status species and habitats. Bighorn sheep WHMAs overlay the entire range of their occurrence and movement corridors. Multi-species WHMAs are complementary to existing restricted areas and

DWMAs (which also cover other special status species and habitats). No restrictions are proposed other than closure of some routes of travel. Management emphasis is placed on active management, specific species and habitats mitigation and restoration for authorized allowable uses. The special situation of "fixed point" rare plants and some animals is also addressed.

(d) **Other areas** - are the remainder of areas not contained in one of the three areas above. These include some target areas in CMAGR and areas of relatively low value, common biological diversity contained mostly (but not entirely) in BLM multiple use class M zone. In these areas Federal lands may be disposed of to accomplish management goals for DWMAs and WHMAs and land uses may occur which are discouraged in more sensitive areas. Except as provided for such situations as tortoise mitigation and some specific species, design and rehabilitation measures based on biological considerations would be less than in other areas.

As much as possible the array of DWMAs and WHMAs does not incorporate areas high in human use values, although this situation does vary by alternative. Finally, an additional significant feature of managing the BLM portion of these areas is a strategic approach to land acquisitions and disposals. See Appendix H for an expanded explanation of the development of DWMAs and WHMAs and Appendix P for a detailed description of boundaries.

Amendments to BLM's California Desert Conservation Area Plan 1980

This chapter identified a range of alternatives to address the purpose and need statements described in Chapter one. Some of the actions require amendment of the California Desert Conservation Area Plan in order to implement them, while others do not. A summary list of proposed Plan Amendments is given in Table 2-1.

Table 2-1 Summary of CDCA Plan Amendments, Preferred Alternative/Large DWMA

[illegible]	[illegible]	[illegible]
Public Land Health	2.1	**Amendment 1**: Proposed standards for Public Land Health and grazing management guidelines
Recovery of the Desert Tortoise		**Amendment 2**: Establish Desert Tortoise Wildlife Management Areas (DWMAs) and manage as Areas of Critical Environmental concern (ACECs) • Change mixed MUC M and L to all MUC L; • Change desert tortoise CAT II and CAT III to all CAT I inside DWMA, change all CAT I and CAT II outside DWMAs to CAT III • Delete some existing ACECs and HMPs • Adopt a set of DWMA (ACEC) management prescriptions
		Amendment 3: Changes to cattle grazing management to recover the desert tortoise and incorporate 1994 BO in livestock grazing.
		Amendment 4: Changes to the stopping, parking, and vehicle camping to recover the desert tortoise.
Management of Special Status Animals and Plants and Natural Communities	2.3	**Amendment 5**: Establish Wildlife Habitat Management Areas (WHMA) for Sonoran and Southern Mojave Bighorn Sheep Metapopulations • Delete some existing HMPs
		Amendment 6: Change MUC I in the Eagle Mountains area to MUC L and MUC M
		Amendment 7: Changes to domestic sheep grazing management for management of the bighorn sheep and incorporate 1994 BO in livestock grazing..
		Amendment 8: Designate Multi-species Wildlife Habitat Management Areas (WHMAs) for abut 60 wildlife and rare plant species
		Amendment 9: Change OHV designation for Palen Dry Lake, Palen Dunes, Rice Valley Dunes, Ford Dry Lake and Ford Dry Lake Dunes
Management of Wild Horses and Burros	2.4	**Amendment 10** Changes to burro management to recover the desert tortoise and reduce conflicts with other agencies/values.
Motorized Access/Routes of Travel/Recreation	2.5	**Amendment 11**: Changes to organized competitive vehicle events to protect sensitive resources • Delete Parker 400 • Delete or modify Johnson Valley to Parker • Delete MUC Guideline criteria in Recreation Element
		Amendment 12: Changes to Routes of Travel Designation process • Make MUC M the same as MUC L • Designate routes of travel open, closed, or limited
		Amendment 13: Changes the distance measurement for stopping, parking off a road from road edge to road centerline.
Incorporate Changes created by 1994 CDPA	2.8	**Amendment 14**: Incorporate wilderness areas into CDCA Plan.

2.1 Issue: Standards and Guidelines

BLM's grazing regulations in Part 43 CFR 4180 require that State Directors, in consultation with Resource Advisory Councils, develop Standards of Rangeland Health and Guidelines for Grazing management. The grazing regulations require that Standards be in conformance with the "Fundamentals of Rangeland Health" (BLM policy developed in 1993) and that the Standards and Guidelines address each of the "guiding principles" as defined in the regulations (see Appendix B). Standards and Guidelines are to be incorporated into BLM's land use plans to improve ecological conditions. Improving ecological conditions is based upon attainment and maintenance of basic fundamentals for healthy systems. Standards and Guidelines are defined as follows:

1. A Standard is an expression of the level of physical and biological condition or degree of function required for healthy, sustainable rangelands.
2. Guidelines for grazing management are the types of grazing management activities and practices determined to be appropriate to ensure that the Standards can be met or significant progress can be made toward meeting standards.

Plan Alternatives and Scope
By this plan amendment Public Land Health Standards will be developed and applied to resources and uses on the public (BLM) lands and grazing management guidelines will be developed and applied to grazing leases. The current regulations include a set of National "fallback" Standards and guidelines, both which apply only to livestock grazing in the Current Management/No Action Alternative. For all other alternatives a common set of "Regional " Standards and guidelines have been developed. Regional Standards apply to all BLM lands and programs, while Regional guidelines still only apply to livestock grazing. BLM staff, in consultation with the California Desert District Advisory Council, have developed the Regional Standards and guidelines which action satisfies the requirements of BLM's strategic plan, complies with the fundamentals of rangeland health, and addresses each of the guiding principles as required by the grazing regulations (see Appendix B). The development of guidelines for grazing management addresses each of the guiding principles as well. At this time there are no plans to develop guidelines for other activities.

While the definition and adoption of Standards and Guidelines applies specifically and only to BLM lands, the spirit of initiative is reflected throughout the Planning Area in developing the strategic approach to managing species and habitats.

Required Action on Grazing Leases
Standards and grazing management guidelines apply to grazing related portions of activity plans, terms and conditions of permits, leases, and other authorizations, and range improvement activities such as vegetation manipulation, fence construction and development of water. For lands leased for grazing uses the grazing regulations require the authorized officer to "take appropriate action" prior to the beginning of the next grazing season when standards or guidelines are not achieved and livestock grazing has been determined to be a significant factor in the failure to achieve the standard or comply with the guideline.

Adoption of Standards and Guidelines
If the No Action alternative is adopted, the National Fallback Standards and Guidelines will be adopted for the California Desert District. If any one of the other three alternatives are selected, the Regional Standards and Guidelines will be adopted. This decision will amend the CDCA Plan so

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that only one set of Standards and Guidelines will be adopted in the CDCA.

Application of Standards in Land Use Planning

If Regional Standards of Public Land Health are adopted, they will be applied to all resources and uses of the public lands in the following manner:

- Public Land Health Standards. A single set of Public Land Health Standards will be applied desert-wide and to all resources and uses. Standards have their foundation in the physical and biological laws of nature. These laws are consistent regardless of the resource or use.
- Assessment of Public Land Health. The health of public lands and resources will be assessed using the Standards as the measurement of desired function.
- Assessment Scale. The health of public lands will be assessed on a landscape/watershed scale. While it mey be useful and necessary to examine certain environmental components on a smaller scale, or at various scales, it is intended the conclusion of overall Public Land Health be made at a landscape or watershed scale.
- Health Determination. Since Standards are a statement of goals for physical and biological function, determinations will be based strictly on the result of resource assessments and be independent of the uses on the public land.
- Resource Objectives. Resource management objectives are decisions made in consideration of resource values and capabilities and use needs through land use and activity plans. Public Land Health will be used to determine if resource management objectives are being met. In some cases, particularly where intensive land uses are allowed, resource management objectives could be met while the Public Land Health determination may indicate non-conformance with the Standards.
- Causal factors. Where Public Land Health assessments indicate that resource management objectives are not being met, a determination will be made as to the causal factors.
- Action/Adaptive Management. Where public land health does not conform to resource management objectives, appropriate action - including changes to land use or activity plans - will be initiated using existing regulatory authorities for each authorized activity. In the case of livestock grazing the regulations require that the authorized officer "take appropriate action" prior to the beginning of the next grazing season when Standards or guidelines are not achieved and livestock grazing has been determined to be a significant factor in the failure to achieve the standard or comply with the guideline.

Application of Standards in NEPA Analyses

Analyses of resources and issues guided by Standards will help NEPA review of projects. Consideration of Standards should improve identification and analyses of:

1. relevant resource conditions and ecosystem functions
2. actions in terms of affects on resources and ecosystem functions
3. the relationship of biological and physical resources and functions
4. the most important resources and functions
5. project design and mitigation
6. cumulative effects
7. short-term and long-term effects
8. project compliance

Goals of Standards and Guidelines

a. Develop Standards that would meet or exceed the National policy for:

- Watersheds
- Ecological processes
- Water quality
- Habitats

b. Develop Guidelines to meet National policy and the grazing regulations.

Objectives

a. Implement Standards as directed by National policy and grazing regulations.
b. Implement Guidelines to conform grazing activities to achieve Standards.

2.1.1 No Action Alternative

Objective a - Implement Standards

CM Manage grazing activities under the National Fallback Standards:

Soils:
Upland soils exhibit infiltration and permeability rates that are appropriate to the soil type, climate, and landform.

Riparian/Wetland:
Riparian-wetland areas are in properly functioning condition.

Stream Function:
Stream channel morphology (including but not limited to gradient, width/depth ratio, channel roughness and sinuosity) and functions are appropriate for the climate and landform.

Native Species:
Healthy, productive, and diverse populations of native species exist and are maintained.

Objective b - Conform grazing activities

CM Manage grazing activities under the following fallback guidelines:

1. Management practices maintain or promote adequate amounts of ground cover to support infiltration, maintain soil moisture, and stabilize soils.
2. Management practices maintain or promote sufficient residual vegetation to maintain, improve, or restore riparian-wetland functions of energy dissipation, sediment capture, groundwater recharge and stream bank stability.
3. Management practices maintain or promote stream channel morphology (e.g., gradient, width/depth ratio, channel roughness and sinuosity) and functions that are appropriate to climate and landform.

4. Management practices maintain or promote the appropriate kinds and amounts of soil organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow.
5. Management practice maintain or promote the physical and biological conditions necessary to sustain native populations and communities.
6. Desired species are being allowed to complete seed dissemination in one out of every three years (Management actions will promote the opportunity for seedling establishment when climatic conditions and space allow.)
7. Conservation of Federal threatened or endangered, Proposed, Category 1 and 2 candidate, and other special status species is promoted by restoration and maintenance of their habitats.
8. Native species are emphasized in the support of ecological function.
9. Nonnative plant species are used only in those situations in which native species are not readily available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health.
10. Periods of rest from disturbance or livestock use during times of critical plant growth or regrowth are provided when needed to achieve healthy, properly functioning conditions (The timing and duration of use periods will be determined by the authorized officer).
11. Continuous, season-long livestock use is allowed to occur only when it has been demonstrated to be consistent with achieving healthy, properly functioning ecosystems.
12. Facilities are located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland function.
13. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.
14. Grazing on designated ephemeral (annual and perennial) rangeland is allowed to occur only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.

2.1.2 Preferred /Large DWMA Alternative
Objective a - Implement Standards

Action Manage all activities under the following Regional standards of Public Land Health :

Soils:

Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, geology, landform, and past uses. Adequate infiltration and permeability of soils allow accumulation of soil moisture necessary for optimal plant growth and vigor, and provide a stable watershed.
As indicated by:

- Canopy and ground cover are appropriate for the site;
- There is diversity of plant species with a variety of root depths;
- Litter and soil organic matter are present at suitable sites;
- Microbiotic soil crusts are maintained and in place;
- Evidence of wind or water erosion does not exceed natural rates for the site; and
- Hydrologic and nutrient functions maintained by permeability of soil and water infiltration are appropriate for precipitation.

Native Species:
Healthy, productive and diverse habitats for native species, including special status species (Federal T&E, Federally proposed, Federal candidates, BLM sensitive, or California State T&E, and CDD UPAs) are maintained in places of natural occurrence.
As indicated by:

- Photosynthetic and ecological processes continue at levels suitable for the site, season, and precipitation regimes;
- Plant vigor, nutrient cycle, and energy flow are maintaining desirable plants and ensuring reproduction and recruitment;
- Plant communities are producing sufficient litter;
- Age class distribution of plants and animals are sufficient to overcome mortality fluctuations;
- Distribution and cover of plant species and their habitats allow for reproduction and recovery from localized catastrophic events;
- Alien and noxious plants and wildlife do not exceed acceptable levels;
- Appropriate natural disturbances are evident; and
- Populations and their habitats are sufficiently distributed and healthy to prevent the need for listing special status species.

Riparian/Wetland and Stream Function:
Wetland systems associated with subsurface, running, and standing water function properly and have the ability to recover from major disturbances. Hydrologic conditions are maintained.
As indicated by:

- Vegetative cover will adequately protect banks, and dissipate energy during peak water flows;
- Dominant vegetation is an appropriate mixture of vigorous riparian species;
- Recruitment of preferred species is adequate to sustain the plant community;
- Stable soils store and release water slowly;
- Plant species present indicate soil moisture characteristics are being maintained;
- There is minimal cover of invader/shallow-rooted species, and they are not displacing deep-rooted native species;
- Maintain shading of stream courses and water sources for riparian dependent species;
- Stream is in balance with water and sediment being supplied by the watershed;
- Stream channel size and meander is appropriate for soils, geology, and landscape; and
- Adequate organic matter (litter and standing dead plant material) is present to protect the site and to replenish soil nutrients through decomposition.

Water Quality:[1]
Surface and groundwater complies with objectives of the Clean Water Act and other applicable

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[1] Management Objective: For water bodies, the primary objective is to maintain the existing quality and beneficial uses of water, protect them where they are threatened (and livestock grazing activities are a contributing factor), and restore them where they are currently degraded (and livestock grazing activities are contributing factor). This objective is of even higher priority in the following situations:

a. where beneficial uses of water bodies have been listed as threatened or impaired pursuant to Section 303(d) of the Federal Clean Water Act;
b. where aquatic habitat is present or has been present for Federal threatened or endangered, candidate, and other special status species dependent on water resources; and,
c. in designated water resource sensitive areas such as riparian and wetland areas.

water quality requirements, including meeting the California State standards.
As Indicated By:

- The following do not exceed the applicable requirements: chemical constituents, water temperature, nutrient loads, fecal coliform, turbidity, suspended sediment, and dissolved oxygen;
- Achievement of the standards for riparian, wetlands, and water bodies;
- Aquatic organisms and plants (e.g., macroinvertebrates, fish, algae, and plants) indicate support for beneficial uses; and
- Monitoring results or other data that show water quality is meeting the standard.

Objective b - Conform grazing activities

Action Manage grazing activities with the following Regional guidelines:

1. Facilities shall be located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland functions.
2. The development of springs and seeps or other projects affecting water and associated resources will be designed to protect the ecological functions and processes of those sites.
3. The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.
4. Grazing activities at an existing range improvement that conflict with achieving proper functioning conditions (PFC) and resource objectives for wetland systems (lentic, lotic, springs, addits, and seeps) shall be modified so PFC and resource objectives can be met, and incompatible projects shall be modified to bring into compliance. The BLM will consult, cooperate, and coordinate with affected interest and livestock producers(s) prior to authorizing modification of existing projects and initiation of new projects. New range improvement facilities shall be located away from wetland systems if they conflict with achieving or maintaining PFC and resource objectives.
5. Supplements shall be located a sufficient distance away from wetland systems so they do not conflict with maintaining riparian wetland functions.
6. Management practices shall maintain or promote perennial stream channel morphology (e.g., gradient, width/depth ration, channel roughness, and sinuosity) and functions that are appropriate to climate and landform.
7. Grazing management practices shall meet State and Federal water quality standards. Where impoundments (stock ponds) and having a sustained discharge yield of less than 200 gallons per day to surface or groundwater are excepted from meeting State drinking water standards per SWRCB Resolution Number 88-63.
8. In the California Desert Conservation Area all wildfires in grazing allotments shall be suppressed. However, to restore degraded habitats infested with invasive weeds (e.g., tamarisk) prescribed burning may be utilized as a tool for restoration. Prescribed burns may be used as a management tool where fire is a natural part of the regime.
9. In years when weather results in extraordinary conditions seed germination, seedling establishment and native plant species growth shall be allowed by modifying grazing use.
10. Grazing on designated ephemeral rangeland shall be allowed only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects or perennial species are avoided.
11. During prolonged drought, range stocking shall be reduced to achieve resource objectives

and /or prescribed perennial forage utilization. Livestock utilization of key perennial species on year-long allotments shall be checked about March 1 when the Palmer Severity Drought Index/Standardized Precipitation Index indicate dry conditions are expected to continue.

12. Through the assessment process or monitoring efforts, the extent of invasive and/or exotic plants and animals shall be recorded and evaluated for future control measures. Methods and prescriptions shall be implemented, and an evaluation will be completed to ascertain future control measures.
13. Restore, maintain or enhance habitats to assist in the recovery of federally listed threatened and endangered species. Restore, maintain or enhance habitats of special status species including federally proposed, Federal candidates, BLM sensitive, or California State T&E to promote their conservation.
14. Grazing activities shall support biological diversity across the landscape and native species and micro biotic crusts are to be maintained.
15. Experimental research efforts shall be encouraged to provide answers to grazing management and related resource concerns through cooperative and collaborative efforts with outside agencies, groups, and entities.

Based on Holechek's (et al., 1998) work or the best scientific information vailable, livestock utilization level of key perennial species in the Mojave Desert range type will not exceed 40 percent on ranges that are grazed during the dormant season and are meeting standards. Rangelands that are grazed during the active growing season and are meeting standards shall not exceed 25 percent utilization of key species. The utilization range between 25 and 40 percent is for those forage species with a proper use factor that will allow consumption up to and between 25 and 40 percent otherwise lower use limits will prevail. Until modified with current information, utilization of the following general range types as shown in Table 2-2 below shall be prescribed for grazing use.

Table 2-2 Preferred Alternative
Utilization Guidelines for Different Vegetative Community Types in the CDD*

Cm.	In.	Percent Use of Key	Vegetative	Reference
10-13	**4-8**	**25-35**	**Salt desert shrubland**	**Hutchings and Stewart 1953; Cook and Child 1971**
13-30	**8-12**	**30-40**	**Semidesert grass and shrubland**	**Valentine 1970; Paulsen and Ares 1961; Martin and Cable 1974; Holechek 1991**
13-30	**8-12**	**30-40**	**Sagebrush grassland**	**Pechanec and Stewart 1949; Laycock and Conrad 1981**
40-130	**16-50**	**30-40**	**Mountain shrub land**	**Pickford and Reid 1948; Skovlin et al. 1976**

Monitoring of grazing allotments resource conditions will be routinely assessed to determine if Public Land Health Standards are being met. In those areas not meeting one of more standards, monitoring processes will be established where none exist to monitor indicators of health until the standard or resource objective has been attained. Livestock trail networks, grazed plants, livestock facilities, and animal waste are expected impacts in all grazing allotments and will be considered during analysis of the assessment and monitoring process. Activity plans for other uses or resources that overlap an allotment could have prescribed resource objectives that may further constrain grazing activities (e.g., ACEC). In an area where a standard has not been met, the results from monitoring changes to grazing management required to meet standards will be reviewed annually. During the final phase of the assessment process, the Range Determination includes the schedule for the next assessment of resource conditions. To attain standards and resource objectives, the best science will be used to determine appropriate grazing management actions. Cooperative funding and assistance from other agencies, individuals, and groups will be sought to collect prescribed monitoring data for indicators of each standard.

2.1.3 Small DWMA A Alternative

Objective a - Implement Standards

REF Same as Preferred Alternative.

Objective b - Conform grazing activities

REF Same as Preferred Alternative.

2.1.4 Small DWMA B Alternative

Objective a - Implement Standards

REF Same as Preferred Alternative.

Objective b - Conform grazing activities

REF Same as Preferred Alternative.

2.2 Issue: Recovery of the Desert Tortoise

The Desert Tortoise (*Gopherus agassizii*) was listed as a threatened species in 1990 under the Federal Endangered Species Act. In 1994 the U.S. Fish and Wildlife Service designated desert tortoise critical habitat and completed a recovery plan, which contains recommendations for protective action. This listing and need to provide for recovery affects several local, State, and Federal agencies, each with differing mandates for conservation and protection of the tortoise.

Goal of Desert Tortoise Conservation Strategy

The overall goal of the desert tortoise conservation strategy in the Planning Area is to recover populations of the desert tortoise in the two NECO recovery units (see USFW Desert Recovery Plan 1994) by meeting the criteria for recovery as specified in the Desert Tortoise Recovery Plan. A summary of these criteria are the following (see page 43 of the Recovery Plan for details):

a. There is an upward or stationary trend in population for at least 25 years;
b. Sufficient habitat is managed intensively to ensure long-term tortoise population viability (given in the Recovery Plan as at least one area of 1000 square miles in each recovery unit);
c. Population lambda (discrete population growth rate, see Desert Tortoise Recovery Plan pg. C31-C32) is at least 1.0. (i.e., death rate is equal to recruitment rate):
    - Land management commitment is sufficient to ensure long-term protection of tortoise populations and habitat;
    - Management is sufficient without the use of regulatory mechanisms in the Endangered Species Act.

Objectives

a. Establish desert wildlife management areas (DWMAs) where viable desert tortoise populations can be maintained;
b. Implement management actions for these areas to address conflicts with the goal;
c. Acquire sufficient habitat within the DWMAs to ensure that management actions are effective in the DWMAs as a unit;
d. Reduce tortoise direct mortality resulting from interspecific (e.g. raven predation) and intraspecific (e.g., disease) conflicts that likely result from human-induced changes in ecosystem processes.
e. Mitigate effects on tortoise populations and habitat outside DWMAs to provide connectivity between DWMAs;

Decisions and Policy Common to all Alternatives

Regardless of the Alternative selected, public lands within the Planning Area will be managed in accordance with all applicable laws and regulations. In addition, current policies complete the overall desert tortoise recovery strategy. The following section lists current policy and management guidance which are common to all alternatives but is not exhaustive.

1. New surface disturbing projects include specific design features (see Appendix D, Desert Tortoise Mitigation Measures) to minimize potential impacts to desert tortoise and desert

tortoise habitat.

2. All mining and mineral activities are subject to mitigation and compensation requirements. Whenever feasible, existing pits will be utilized for sand and gravel operations.
3. In areas of high fire incidence or in years of heavy fuel loading, campfire closures are enforced.
4. Wildfire suppression occurs with the minimum surface disturbance practical in all habitats. Wildfires are suppressed using only a mix of the following methods to avoid habitat disturbance:
   - aerial attack
   - crews using hand tools to create fire breaks
   - mobile attack engines limited to public roads, designated open routes, and routes authorized for limited-use
   - use of foam and/or fire retardant, and
   - earth-moving equipment or tracked vehicles (such as bulldozers) in critical situations to protect life, property, or high-value resource
5. Post-suppression mitigation includes rehabilitation of firebreaks and other ground disturbances and obliteration of vehicle tracts sufficient to discourage future casual use. Hand tools are used for rehabilitation activities whenever feasible.
6. All major, new linear utilities are placed in existing, designated utility corridors consistent with the existing CDCA Plan Energy Production and Utility Element. To the extent feasible, existing routes are utilized to provide access for maintenance of new ROWs (Map 2-1 Appendix A).
7. Existing wildlife guzzlers will be modified to minimize mortality to desert tortoises and other wildlife, and new guzzlers will incorporate appropriate design features to do the same.
8. Federal agencies will maintain a law enforcement presence to enforce wildlife regulations, and reduce illegal dumping, littering, arson, off-road vehicle travel, and vandalism, and otherwise identify problems and concerns in proposed DWMAs.
9. The BLM will cooperate with other groups and agencies to identify areas where uncontrolled dogs are causing desert tortoise mortality. In the event such a situation is discovered, BLM will encourage counties to adopt or enforce ordinances prohibiting uncontrolled dogs in those areas.

Planning Area-wide Decisions and Management Strategy Common to Preferred Large DWMA, Small DWMA A, and Small DWMA B Alternatives

1. A restoration performance bond will be required for projects that count against projects that would create a significant disturbance. The project proponent maybe required to periodically maintain restoration work including repeat of initial work. Restoration work may include, but is not limited to seeding, planting, surface preparation, treating weed species, fence repair and watering. For details on implementation of this measure, see Appendix E.
2. Restoration of areas disturbed by projects will vary from site to site by design, costs, and methods. Restoration will be guided by site planning and standard or experimental technologies as defined in publications and generally described in Appendix E.
3. Key segments of closed routes of travel (described in Appendix I) will be restored to meet two goals: 1) protection and enhancement of habitat and species, and 2) implement route

closure decisions.

4. Participate with other agencies in development and implementation of a region-wide desert tortoise public education program. The desert Information Resource Task Group Program Coordinator will coordinate the program under direction of the Desert Managers' Group. Until the new program is developed, implementation of the applicable elements of the public education program (Appendix F) presented in the California Statewide Desert Tortoise Management Policy.
5. Agencies will work with Cal Trans to design and install separate, freestanding, interpretive kiosks with desert tortoise protection information at Interstate Highway rest areas (e.g., Sand Hills on I-8, Cactus City and Wiley's Well on I-10, and Fenner Valley on I-40).
6. A Northern and Eastern Colorado Desert Coordinated Management Plan Cooperator's Meeting will be held at least annually. The agenda will include a review of implementation actions in this plan, population trends as indicated by monitoring, progress in research actions, status of public education programs, and cumulative new surface disturbance. Each of the cooperating agencies- BLM, NPS, USMC, USFWS, CDFG - will have an official representative present at the meeting. Among these representatives, a meeting moderator selected will prepare an agenda and minutes and will ensure that an annual report is assembled at least 10 days prior to the meeting. The general public, interest groups, and other agencies will be invited and will be given time on the agenda to comment on plan implementation.
7. Public comment on critical issues will be solicited from the California Desert Advisory Council for actions on BLM lands and from the Joshua Tree National Park Commission for actions on Park lands. The NEPA process will be used to provide information to the public and to solicit comments on proposed projects occurring on federally administered lands in the Planning Area.
8. The MOG will oversee activities of the Desert Tortoise Coordinator and will have approval for various tortoise technical procedures.
9. The Desert Managers Group will continue to provide strategic fiscal planning and will oversee activities of the Integrated Ecosystem Monitoring Coordinator, the Public Information Coordinator, and the Habitat Restoration Coordinator. The Desert Managers Group will address interagency relations in the Planning Area.
10. The BLM and USMC will develop an interagency agreement for management of the Chocolate Mountains Gunnery Range as required by the California Desert Protection Act (Title VIII).
11. The BLM will formally consult with USFWS as required by the Endangered Species Act on all listed species affected by the CDCA Plan in the NECO Planning Area. The consultation will cover BLM-administered lands and may lead to modifications to Biological Opinions issued to NPS and USMC. The consultation will include all plan actions and will programmatically include all projects on Federal land or a combination of Federal and other ownership in which there is Federal nexus, that meet the specific or general scope of the types of anticipated projects with the exception of any project which:
    - disturbs more than 100 acres
    - requires an EIS
    - requires a CDCA Plan amendment
    - electrical transmission lines or pipelines within existing CDCA Plan utility corridors, regardless of acres disturbed

    An EA will accompany the Report of Proposed Action to be covered by the Programmatic Consultation Form.

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12. In working with local and state governments on land use authorizations within their jurisdictions, Federal land management agencies will advocate the following with respect to reducing raven populations and their negative effects on the tortoise:
    - reduce the availability of solid wastes at sanitary landfills,
    - reduce the availability of organic wastes (related to facilities and methods for trash service, dump stations, and composting practices) unrelated to landfills, and
    - reduce the availability of water (related to facilities and methods for sewage treatment, pool/pond design, and irrigation)
13. The Desert Managers Group and the NECO cooperators will hold a management review when surface disturbance limit (!% or 3% depending on alternative selected) has reached the halfway point on an individual tortoise recovery unit basis.

2.2.1 No Action Alternative

Objective a - Desert Wildlife Management Areas

Northern Colorado Desert Recovery Unit

CM Manage current Category I and II desert tortoise habitat (Map 2-3 Appendix A) according to the *California Statewide Desert Tortoise Management Policy* and current Multiple-Use Class designations (Map 2-2 Appendix A). Manage Critical Habitat on CMAGR with the current biological opinion.

Eastern Colorado Desert Recovery Unit

CM Manage current Category I and II desert tortoise habitat (Map 2-2 Appendix A) according to the *California Statewide Desert Tortoise Management Policy*. Manage *Chuckwalla Bench ACEC* and *Milpitas Wash HMP* (Map 2-4 Appendix A) according to existing plans and MUC Classes (Map 2-2 Appendix A).

CM JTNP's is managed according to the General Plan and with an emphasis on natural ecosystem management policies which provide adequate protection against potential habitat-altering activities.

Objective b - Management Actions within Category I and II Habitat

A. General Actions

CM Proposed activities and projects which cause new surface disturbance are evaluated on a case-by-case basis.

CM Compensation for disturbance of public lands within Category I & II is required according to the California Statewide Policy. This formula requires compensation in a range between 4-6 acres compensation lands required for each 1 acre disturbed. Equivalent funds may be directed toward habitat enhancement or rehabilitation. All compensation is directed to the Recovery Unit where the disturbance occurs. Compensation is required for uses authorized to all entities including agencies with the land administration responsibility.

CM ACECs entry points are signed and in certain cases such as the Desert Lily Preserve, are fenced to protect sensitive habitat from impacts related to vehicular access.

B. Grazing Management

CM Management of the Chemehuevi Cattle Allotment (Map 2-5 Appendix A) will continue with current boundaries (encompasses 137,321 acres) and management practices.

CM Management of the Lazy Daisy Cattle Allotment (Map 2-5Appendix A) will continue with current boundaries (encompassing 332,886 acres), forage allocation of 3,192 AUM, and management practices.

CM Cattle Grazing is permitted between April 1 and June 1 on ephemeral grazing authorizations only in years when annual plant biomass exceeds 350 pounds per acre.

CM Perennial plant utilization may not exceed 40 percent in any key area within desert tortoise habitat.

CM Table 2-3 indicates additional proposed range improvements.

Table 2-3 No Action Alternative Proposed Range Improvements

Allotment Name	*Range Improvement*	*Quantity and Unit*	*Estimated Cost*	*Desert Tortoise Category/DWMA*
Chemehuevi	Fence	1 mile	$1,000	III
	Water Site[1]	1 each	750	III
	Water Facility[1]	1 each	3,500	III
Lazy Daisy	Fence	5.5 miles	22,000	I
	Cattleguard	1 each	3,760	I
	Water Site[1]	3 each	3,000	I
		1 each	1,000	III
	Water Facility[1]	4 miles of pipe	21, 200	I
		4 each	4,000	I
		2 each	2,000	III
	Corrals	2 each	4,000	I
		1 each	2,000	III
Total All Allotments			$68,210	

1/ Water sites include any water accessible to cattle i.e., troughs, springs, and reservoirs.
Water facilities include facilities associated with water sites such as windmills, water storage tanks, and pipeline.

C. Vegetation Resources

CM Permits for live vegetation harvest may be issued in non-wilderness areas after environmental review.

D. Lands and Land-Use Authorizations

CM Lands acquired through compensation or mitigation are classified OPEN for disposal or use, under the following authorities:

- Agricultural Land Laws (e.g., Desert Land Entry, Carey Act, Indian Allotment)
- Recreation and Public Purposes Act Lease or conveyance
- FLPMA Lease/Sale (exceptions may be considered for sale of HAZMAT sites to potentially responsible parties)
- Airport Lease/Grant
- Non-protective withdrawals

E. Transportation/Access

CM Fencing of major highways and railroads are considered as mitigation when new construction projects are proposed.

CM Bridges and culverts are considered as mitigation when new construction projects are proposed.

CM Stopping, parking, and vehicle camping are allowed within 300 feet of a route except within sensitive areas (such as ACECs) where the limit is 100 feet. Where a wilderness area is closer to a route than the indicated standard, stopping, parking and vehicle camping are allowed only to

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the wilderness boundary.

REF See section 2.5 Issue: Designation of Routes of Travel for prescriptions relating to transportation and access.

F. Recreation

CM Use of firearms is permitted and regulated according to State regulations and county ordinances.

REF See section 2.5 Issue: Designation of Routes of Travel for prescriptions relating to recreation.

G. Wild Horses and Burros

REF See section 2.4 Issue: Wild Horses and Burros for prescriptions relating to management of wild horses and burros.

Objective c - Acquire Sufficient Habitat

CM Federal agencies retain public lands within Category I and exchanges in Category II habitat is allowed only if an equivalent or greater amount of Category I or II habitat is acquired in public ownership as a result of the exchange (disposals through any methods may occur in Category III).

REF See section 2.6 Issue: Land Ownership Pattern Federal for land ownership management.

Objective d - Reduce Tortoise Direct Mortality Due to Changes in Ecosystem Processes

CM Raven management is accomplished by evaluating projects on a case project by case basis and appropriate mitigation is prescribed.

Objective e - Mitigate Effects on Tortoise Populations Outside Category I and II Habitat

CM Grazing within desert tortoise habitat but outside Category I and II habitat is conducted under the terms and conditions of the 1994 biological opinion and the "Fallback" Standards and Guidelines.

REF Stopping, parking, and vehicle camping are allowed within 300 feet of a route except within sensitive areas (such as ACECs) where the limit is 100 feet. Where a wilderness area is closer to a route than the indicated standard, stopping, parking and vehicle camping are allowed only to the wilderness boundary.

2.2.2 Preferred/Large DWMA Alternative

Objective a - Desert Wildlife Management Areas

Northern Colorado Desert Recovery Unit

Action Designate the *Chemehuevi DWMA* an ACEC, as shown in Map 2-6 Appendix A to protect desert tortoise and significant natural resources including special status plant and animal species and natural communities; USFWS will modify desert tortoise critical habitat to coincide with the DWMA. This area encompasses about 874,843 acres and contains some exclusions to allow for existing and future development (i.e., freeway exits, towns). Table 2-4 shows the distribution of land ownership in this area.

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Table 2-4. Distribution of Land Ownership in the Chemehuevi DWMA.

Landowner	No Action Alternative (Category I, II)		Preferred/Large DWMA Alternative		Small DWMA A /Small DWMA B	
	Acres	% of area	Acres	% of area	Acres	% of area
BLM	866,986	91	815,843	93	695,500	94
State Lands	23,782	3	25,193	3	20,230	3
Private/Other	59,271	6	33,807	4	25,710	3

Eastern Colorado Desert Recovery Unit

Action Designate the *Chuckwalla DWMA*, an ACEC, as shown in Map 2-6 Appendix A to protect desert tortoise and significant natural resources including special status plant and animal species and natural communities; USFWS will modify desert tortoise critical habitat to coincide with the DWMA. This area encompasses about 820,077 acres and contains some exclusions to allow for existing and future development (i.e., freeway exits, towns). Table 2-5 shows the distribution of land ownership in this area.

Table 2-5. Distribution of Land Ownership in the Chuckwalla DWMA.

Landowner	No Action Alternative (Category I, II and Critical Habitat in CMAGR)		Preferred/Large DWMA Alternative		Small DWMA A/ Small DWMA B Alternative	
	Acres	% of area	Acres	% of area	Acres	% of area
BLM	365,599	52	465,287	57	355,929	56
USMC	187,815	27	187,815	23	187,815	30
State Lands	14,146	2	19,882	2	13,958	2
Private/Other	129,170	19	147,093	18	74,392	12

Action Designate JTNP as shown in Map 2-6 Appendix A as the Joshua Tree DWMA. The remainder of JTNP may be added to this DWMA through the West Mojave Coordinated Management Plan.

Objective b - Management Actions within DWMAs

A. General Actions

Action Delete Chuckwalla Bench ACEC and Milpitas Wash HMP which are captured inside the proposed Chuckwalla DWMA.

Action Re-designate all Multiple-Use Class M lands within the proposed DWMAs to Multiple-Use Class L (Map 2-7 Appendix A).

Action Designate proposed DWMAs as Category I Desert Tortoise Habitat.

Action Limit cumulative new surface disturbance on lands administered by Federal agencies within any

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DWMA to 1 percent of the Federal portion of the DWMA (Appendix G). The amount that may be disturbed will be proportional to the holding of the administering agency.

Action Compensation for disturbance of public lands within DWMAs will be required at a 5:1 ratio within desert tortoise habitat. Equivalent funds may be directed toward habitat enhancement or rehabilitation (only option for CMAGR). All compensation will be directed to the Recovery Unit where the disturbance occurs. Compensation is required for uses authorized to all entities including agencies with the land administration responsibility.

Action The periphery of DWMAs will be fenced, signed or patrolled to ensure that conflicts with adjacent land uses are controlled. Where there are open or limited routes of travel, fencing will not hinder access.

B. Grazing Management

Action That portion of the Lazy Daisy Cattle Allotment falling within the highest density of desert tortoise habitat will be eliminated. This will reduce the allotment from 332,886 acres to 311,280 acres (reduction of 21,606 acres)(Map 2-8 Appendix A).

Action The Lazy Daisy Allotment lessee may voluntarily relinquish all grazing use authorizations thereby initiating a grazing decision to terminate forage allocation and range improvement authorizations and to eliminate the allotment designation in the CDCA Plan. The intent of this alternative is to allocate the land to tortoise conservation, but grazing will continue until the lessee desires to terminate the lease.

Action The terms and conditions in the 1994 biological opinion (Appendix C) will be added to the CDCA Plan Grazing Element as permanent requirements for cattle and sheep grazing in desert tortoise critical habitat and other tortoise habitat.

Action Ephemeral authorization will be terminated in the Lazy Daisy and Chemehuevi allotments. As a result the Lazy Daisy "perennial/ephemeral" designation will be changed to "perennial only"and the Chemehuevi Grazing Allotment will be terminated.

Action Perennial plant utilization may not exceed 25 percent in any key area; this will reduce forage quantity on the Lazy Daisy Allotment by 22 percent and AUMs to 2,483 from 3,192 (reduction of 709 AUMs).

Action For cattle grazing allotments which are entirely or partially included in DWMAs, a grazing strategy will be developed to address forage competition between cattle and desert tortoise specifically, when ephemeral forage production is less than 230 pounds per acre, cattle shall be substantially removed from the DWMA as per the grazing strategy from 3/15 to 11/1. The grazing strategy will be developed within a year and implemented within two years. The Strategy shall be a written plan detailing the area of removal, natural cattle movements, existing and potential improvements, and other constraints of cattle management.

Action Table 2-6 indicates anticipated additional proposed range improvements to improve cattle distribution and to substantially remove cattle from the DWMA as per strategy.

Action All existing cattle guards will be modified to prevent entrapment of desert tortoises. New cattle guards will be designed to prevent entrapment of desert tortoise.

Table 2-6 Preferred Alternative Proposed Range Improvements

Allotment Name	*Proposed Range Improvement*	*Quantity and Unit*	*Estimated Cost*	*Desert Tortoise Category/DWMA*
Lazy Daisy	Fence	18 miles	72,000	DWMA
	Cattleguard	3 each	11,280	DWMA
	Water Site[1]	3 each	3,000	DWMA
		1 each	1,000	III
	Water Facility[1]	4 miles of pipe	21, 200	DWMA
		4 each	4,000	DWMA
		2 each	2,000	III
	Corrals	2 each	4,000	DWMA
		1 each	2,000	III
Total All Allotments			$196,010	

1/ Water sites include any water accessible to cattle i.e., troughs, springs, and reservoirs.
Water facilities include facilities associated with water sites such as windmills, water storage tanks, and pipeline.

C. Vegetation Resources

Action Permits for live vegetation harvest may be issued after environmental review only within salvage areas where surface disturbance has been authorized.

D. Lands and Land-Use Authorizations

Action Lands acquired through compensation or mitigation will be classified as CLOSED to disposal and use, through the following authorities:

- Agricultural Land Laws (e.g., Desert Land Entry, Carey Act, Indian Allotment)
- Recreation and Public Purposes Act Lease or conveyance
- FLPMA Lease/Sale (exceptions may be considered for sale of HAZMAT sites to potentially responsible parties)
- Airport Lease/Grant
- Non-protective withdrawals

E. Transportation/Access

Action Interstate Highways 40 and 10 will be fenced by Cal Trans along their common boundaries with DWMAs to preclude tortoise mortality and limit other wildlife mortality. In addition State Highway 95 will be fenced by Cal Trans in that section of the Chemehuevi DWMA in which the tortoise population density is 50+ per square mile. On this highway the fence will be installed only when highway upgrade occurs (washes are spanned with bridges and culverts to complement the fencing). Everywhere that fencing is installed it will be placed on both sides of highways. Fencing will meet standard design and installation specifications. Placement of fencing will not affect driving on connecting or nearby routes designated "open" or "limited". Fencing will be installed in sections of varying lengths according to routine highway maintenance cycles. Map 2-9 Appendix A and Table 2-7 show the locations, amounts and costs of fencing.

Action Bridges and culverts for animal passage will be required for new linear projects, such as roads and railroads.

Action Portions of DWMAs are designated as "washes closed zones" wherein vehicle use is restricted to specific routes, including navigable washes, that are individually designated "open" or "limited" (Map 2-10 Appendix A).

Action Stopping, parking, and vehicle camping are allowed no more than 100 feet from the centerline of an approved route of travel within DWMAs. Where wilderness area is closer to an approved route than the indicated standard, stopping, parking, and vehicle camping are allowed only to the boundary.

REF See section 2.5 Issue: Motorized-Vehicle Access/Routes of Travel Designation/Recreation for management transportation and access, which includes definitions of terms related to routes and washes.

F. Recreation

Action Use of firearms will be permitted and regulated according to state and county ordinances.

REF See section 2.5 Issue: Motorized-Vehicle Access/Routes of Travel Designation/Recreation for management prescriptions relating to recreation.

G. Wild Horses and Burros

REF See section 2.4 Issue: Wild Horses and Burros for management prescriptions related wild horses and burros.

Objective c - Acquire Sufficient Habitat

Action Federal agencies will retain public lands within DWMAs and Category I habitat.

REF See section 2.6 Issue: Land Ownership Pattern for acquisition management.

Objective d - Reduce Tortoise Direct Mortality Due to Changes in Ecosystem Processes

Action Remove ravens that are known to prey on tortoise through selective shooting, poisoning, or trapping and euthanization where there is evidence of raven predation in or within 1 mile of tortoise habitat.

Action Proposed projects on Federal lands anywhere in the Planning Area which have a potential for increasing raven populations will be reviewed for design and operations features and will require mitigation measures to reduce or eliminate the opportunity for proliferation of ravens.

REF Highway roadkills as a raven food source will be reduced by fencing Interstate and State highways to limit animal access.

Objective e - Mitigate effects on Tortoise Populations outside DWMAs

Action All existing Desert Tortoise Category I, II or III outside of DWMA boundaries will be converted to and managed as Category III habitat.

Action Grazing within desert tortoise habitat will be conducted under the terms and conditions of the 1994 biological opinion and the Regional Standards and Guidelines.

REF See section 2.5 Issue: Motorized-Vehicle Access/Routes of Travel Designations/Recreation. The "300-foot rule" for stopping, parking, and vehicle camping applied and is modified to reflect that the standard is measured from the *centerline* of a route outside DWMAs. Where a wilderness area is closer to a route than the indicated standard, stopping, parking and vehicle camping are allowed only to the wilderness boundary.

Table 2-7. Length (miles) and costs (millions) of fencing proposed for highways, major roads, and railroads for the three alternative actions. Length shown includes both sides of the highways. Cost is estimated at $10/LF.

Highway or Railroad	**Preferred/Large DWMA Alternative Miles**	**Small DWMA A Alternative Miles**	**Small DWMA B Alternative Miles**
Chemehuevi DWMA			
Interstate 40	68	40	18
Highway 95	28	46	28
Historic Routes 66	0	75	
Havasu Road	0	12	
Ward Valley	0	80	
ATSF Railroad	0	40	
Subtotal	96	293	46
Chuckwalla DWMA			
Interstate 10	112	102	12
Box Canyon Road	0	8	
Wiley Well/Milpitas Road	0	70	
Bradshaw Road	0	104	
Subtotal	112	302	12
Joshua Tree DWMA			
Cottonwood Road	0	60	0
Total all DWMAs	208	637	58
Estimated cost @ $10/ft	$10.9 million	$23.6 million	$1.5 million

2.2.3 Small DWMA A Alternative
Objective a - Desert Wildlife Management Areas

Northern Colorado Desert Recovery Unit

Action Designate the *Chemehuevi DWMA* an ACEC, as shown in Map 2-11 Appendix A to protect desert tortoise and significant natural resources including special status plant and animal species and natural communities; USFWS will modify desert tortoise critical habitat to coincide with the DWMA. This area encompasses about 741,440 acres and contains some exclusions to allow for existing and future development (i.e., freeway exits, towns). This alternative DWMA was designed to minimize conflicts between tortoise habitat protection and grazing.

Eastern Colorado Desert Recovery Unit

Action Designate the *Chuckwalla DWMA* an ACEC, as shown in Map 2-11 Appendix A to protect desert tortoise and significant natural resources including special status plant and animal species and natural communities; USFWS will modify desert tortoise critical habitat to coincide with the DWMA. This area encompasses about 632,094 acres and contains some exclusions to allow for existing and future development (i.e., freeway exits, towns). This alternative DWMA was designed to minimize conflicts between tortoise habitat protection and recreation, hunting, and high proportion of private land with many owners.

Action Designate JTNP as shown in Map 2-11 Appendix A as *the Joshua Tree DWMA*. The remainder of JTNP may be added to this DWMA through the West Mojave Coordinated Management Plan.

Objective b - Management Actions within DWMA

A. General Actions

Action Delete *the Chuckwalla Bench ACEC* which is incorporated in *the Chuckwalla DWMA*.

Action Designate all Multiple-Use Class M lands in the proposed DWMAs as Multiple-Use Class L (Map 2-12 Appendix A).

Action Designate proposed DWMAs as Category I Desert Tortoise Habitat.

Action There will be no threshold on new surface disturbance.

Action Compensation for disturbance of public lands within DWMAs will be required according to the California Statewide Policy (for Category I). This formula will require compensation in range between 4-6 acres compensation lands required for each 1 acre disturbed. Equivalent funds may be directed toward habitat enhancement or rehabilitation. All compensation will be directed to the Recovery Unit where the disturbance occurs. Compensation is required for uses authorized to all entities including agencies with the land administration responsibility.

Action The periphery of DWMAs will be fenced where there are conflicts with adjacent land uses and access cannot be otherwise controlled. Where there are open or limited routes of travel, fencing will not hinder access.

B. Grazing Management

Action Terminate the Chemehuevi Allotment and eliminate use on 137,321 acres (Map 2-13 Appendix A).

Action That portion of the Lazy Daisy Allotment falling within the Chemehuevi DWMA will be eliminated. This will reduce the allotment from 332,886 acres to 192,529 acres (reduction of 140,357 acres) and reduce forage quantity from 3,192 AUMs to 2,554 AUMs (reduction of 638 AUMs)(Map 2-13 Appendix A).

Action The terms and conditions in the 1994 biological opinions will be added to the CDCA Plan Grazing Element as permanent requirements for cattle and sheep grazing in desert tortoise critical habitat and other tortoise habitat.

Action All existing cattle guards will be modified to prevent entrapment of desert tortoises. New cattle guards will be designed to prevent entrapment of desert tortoise.

Action Table 2-8 indicates anticipated additional proposed range improvements to improve cattle distribution and to substantially remove cattle from the DWMA as per strategy.

C. Vegetation Resources

REF Same as the Preferred Alternative.

D. Lands and Land-Use Authorizations

REF Same as the Preferred Alternative.

Table 2-8 Small DWMA A Alternative Proposed Range Improvements

Allotment Name	*Proposed Range Improvement*	*Quantity and Unit*	*Estimated Cost*	*Desert Tortoise Category/DWMA*
Lazy Daisy	Fence	61.5 miles	246,000	I
	Cattleguard	7 each	26,320	I
	Water Site[1]	3 each	3,000	I
		1 each	1,000	Non-category
	Water Facility[1]	4 miles of pipe	21, 200	I
		4 each	4,000	I
		2 each	2,000	Non-category
	Corrals	2 each	4,000	I
		1 each	2,000	Non-category
Total All Allotments			$309,520	

1/ Water sites include any water accessible to cattle i.e., troughs, springs, and reservoirs.
Water facilities include facilities associated with water sites such as windmills, water storage tanks, and pipeline.

E. Transportation/Access

Action Portions of several interstate highways, state highways, maintained roads, and railroads in and adjacent to DWMAs will be fenced as recommended in the *Desert Tortoise Recovery Plan* to preclude tortoise mortality and limit other wildlife mortality. The work will be accomplished by various agencies and utilities companies which have the operation and maintenance responsibilities for the indicated road/railroad. For highways scheduled to be elevated over washes, fences will be installed when highway upgrade occurs. Installation along highways and roads which will never be elevated over washes may require design solutions which result in "leaky" fences and may incompletely reduce highway/road mortality. Where fencing is installed it will be placed on both sides of highways/roads. Fencing will meet standard design and installation specifications. Placement of fencing will not affect driving on connecting or nearby routes designated "open" or "limited". Fencing will be installed in sections of varying lengths according to routine highway maintenance cycles. Map 2-14 Appendix A and Table 2-7 show the locations, amounts and costs of fencing.

Action Bridges and culverts for animal passage will be required for new linear projects, such as roads and railroads; existing linear projects will be retrofitted with bridges and culverts.

Action All DWMAs are designated as "washed closed zones" wherein vehicle use is restricted to specific routes, including navigable washes, that are individually designated "open" or "limited".

Action Stopping and parking are allowed no more than 30 feet from the centerline of an approved route of travel within DWMAs. Vehicle camping is allowed only in designed area. Where a wilderness area is closer to an approved route than the indicated standard, stopping, parking, and vehicle camping are allowed only to the boundary.

REF See section 2.5 Issue: Motorized-Vehicle Access/Routes of Travel Designation/Recreation for management of transportation and access.

F. Recreation

Action Discharge of firearms will not be allowed in DWMAs except for hunting of game between September 1 and March 1.

REF See section 2.5 Issue: Motorized-Vehicle Access/Routes of Travel Designation/Recreation for management prescriptions related to recreation.

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G. Wild Horses and Burros

REF See section 2.4 Issue: Wild Horses and Burros for management prescriptions related to wild horses and burros.

Objective c - Acquire Sufficient Habitat

Action Federal agencies will retain public lands within DWMAs.
REF See section 2.6 Issue: Land Ownership Pattern for acquisition management.

Objective d - Reduce Tortoise Direct Mortality Due to Changes in Ecosystem Processes

REF Same as Preferred Alternative with the following exception:
Action Ravens that are known to prey on tortoise may be removed through non-lethal means, only.

Objective e - Mitigate effects on Tortoise Populations outside DWMAs

REF Same as the Preferred Alternative.

2.2.4 Small DWMA B Alternative

Objective a - Desert Wildlife Management Areas

Northern Colorado Desert Recovery Unit

REF Same as Small DWMA A Alternative.

Eastern Colorado Desert Recovery Unit

REF Same as Small DWMA A Alternative.

Objective b - Management Actions within DWMAs

A. General Actions

Action Delete *the Chuckwalla Bench ACEC* which is incorporated in *the Chuckwalla DWMA* (Map 2-4 Appendix A).
Action Designate all Multiple-Use Class M lands in the proposed DWMAs as Multiple-Use Class L (Map 2-12 Appendix A).
Action Designate proposed DWMAs as Category I Desert Tortoise Habitat.
Action Cumulative new surface disturbance on lands administered by Federal agencies within any DWMA to 3 percent of the Federal portion of the DWMA (Appendix G). The amount that may be disturbed will be proportional to the holding of the administering agency. For projects over 40 acres, a restoration performance bond may be required for projects that count against the 3% DWMA disturbance limit. This may require the project proponent to periodically maintain restoration work including repeat of initial work. Work may include, but is not limited to: seeding/planting, surface preparation, mowing weed species, fence repair, watering and road closure. For details on implementation of this measure, see Appendix D.
Action Compensation for disturbance of public lands within DWMAs will be required according to the

California Statewide Policy (for Category I). This formula will require compensation in range between 4-6 acres compensation lands required for each 1 acre disturbed. Equivalent funds may be directed toward habitat enhancement or rehabilitation. All compensation will be directed to the Recovery Unit where the disturbance occurs. Compensation is required for uses authorized to all entities including agencies with the land administration responsibility.

Action Boundaries of DWMAs will not be fenced when there are conflicts with uses.

B. Grazing Management

Action That portion of the Lazy Daisy Allotment falling within the proposed Chemehuevi DWMA will be eliminated (Map 2-15 Appendix A). This will reduce the size of the allotment from 332,886 acres to 192,529 acres (reduction of 140,357 acres) and reduce forage quantity from 3,192 AUMs to 2,554 AUMs (Reduction of 638 AUMs).

Action That portion of the Chemehuevi Allotment falling within the highest density of desert tortoise habitat(Map 2-15 Appendix A) will be eliminated. This will reduce the size of the allotment from 137,321 acres to 100,841 acres (reduction of 36,480 acres).

Action The Chemehuevi Allotment lessee may voluntarily relinquish all grazing use authorizations thereby initiating a grazing decision to terminate forage allocation and range improvement authorizations and to eliminate the allotment designation in the CDCA Plan. The intent of this alternative is to allocate the primary use of land to tortoise conservation, but grazing will continue until the lessee desires to terminate the lease.

Action The terms and conditions in the 1994 biological opinions will be added to the CDCA Plan Grazing Element as permanent requirements for cattle and sheep grazing in desert tortoise critical habitat and other tortoise habitat.

Action All existing cattle guards will be modified to prevent entrapment of desert tortoises. New cattle guards will be designed to prevent entrapment of desert tortoise.

Action Table 2-9 indicates anticipated additional proposed range improvements to improve cattle distribution.

Table 2-9 Small DWMA B Proposed Range Improvements

Allotment Name	*Proposed Range Improvement*	*Quantity and Unit*	*Estimated Cost*	*Desert Tortoise Category/DWMA*
Chemehuevi	Fence	15 miles	$60,000	DWMA
	Cattleguard	3 each	11,280	III
	Water Site[1]	1 each	750	III
	Water Facility[1]	1 each	3,500	
Lazy Daisy	Fence	5.5 miles	22,000	I
	Cattleguard	1 each	3,760	I
	Water Site[1]	3 each	3,000	I
		1 each	1,000	Non-category
	Water Facility[1]	4 miles of pipe	21, 200	I
		4 each	4,000	I
		2 each	2,000	Non-category
	Corrals	2 each	4,000	I
		1 each	2,000	Non-category
Total All Allotments			$385,050	

1/ Water sites include any water accessible to cattle i.e., troughs, springs, and reservoirs.
Water facilities include facilities associated with water sites such as windmills, water storage tanks, and pipeline.

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C. Vegetation Resources

Action Permits for live vegetation harvest may be issued after environmental review for creosote bush stems or for any plant within salvage areas where surface disturbance has been authorized.

D. Lands and Land-Use Authorizations

REF Same as Small DWMA A.

E. Transportation/Access

Action Portions of Interstate Highways 40 and 10 and State Highways 95 will be fenced by Cal Trans along their common boundaries with DWMAs to preclude tortoise mortality and limit other wildlife mortality. Because of the extreme cost involved, fencing will only be installed where two criteria are met: 1) highways have more than 1000 vehicles per day, and 2) the adjacent tortoise population is 50+ per square mile. State Highway 95 fencing will be installed only when highway upgrade occurs (washes are spanned with bridges and culverts to complement the fencing). Where fencing is installed it will be placed on both sides of highways. Fencing will meet standard design and installation specifications. Placement of fencing will not affect driving on connecting or nearby routes designated "open" or "limited". Fencing will be installed in sections of varying lengths according to routine highway maintenance cycles. Map 2-16 Appendix A and Table 2-7 show the locations, amounts and cost of fencing.

Action Bridges and culverts for animal passage will be required for new linear projects, such as roads and railroads.

Action Stopping, parking, and vehicle camping are allowed no more than 300 feet from the centerline of an approved route of travel within DWMAs. Where a wilderness area is closer to a route than the indicated standard, stopping, parking, and vehicle camping are allowed only to the wilderness boundary.

REF See section 2.4 Issue: Motorized-Vehicle Access/Routes of Travel Designation/Recreation for management of transportation and access.

F. Recreation

REF See section 2.4 Issue: Motorized-Vehicle Access/Routes of Travel Designation/Recreation for management of recreation.

G. Wild Horses and Burros

REF See section 2.4 Issue: Wild Horses and Burros for management prescriptions related to wild horses and burros.

Objective c - Acquire Sufficient Habitat

Action BLM may dispose of public lands within a DWMA if it augments the overall management strategy.

REF See section 2.6 Issue: Land Ownership Pattern for land acquisition management.

Objective d - Reduce Tortoise Direct Mortality Due to Changes in Ecosystem Processes

REF Same as Small DWMA A Alternative with the following exception:

Action Ravens known to prey on tortoise may be removed through non-lethal measures only.

Objective e - Management Actions Outside DWMAs

REF Same as Small DWMA A Alternative.

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2.3 Issue: Management of Special Status Animals and Plants and Natural Communities

This section is organized into three parts:

1. Bighorn sheep are addressed separately because a set of wildlife habitat management areas (WHMAs) are proposed that are particular to their complex geographic occurrence, or metapopulation and needs.
2. Desert Mule Deer are addressed separately because their management is related to the aesthetic, education, and recreational uses rather than conservation as a special status species.
3. Other Special Status Animals and Plants and Natural Communities are grouped together into a proposed common set of WHMAs that are different than those proposed for bighorn sheep.

Goals of Desert Bighorn Sheep Conservation Strategy

The overall goal of the desert bighorn sheep conservation strategy in the Planning Area is to ensure the long-term viability of the Sonoran Desert Bighorn Sheep Metapopulation and the Southern Mojave Desert Bighorn Sheep Metapopulation. To achieve this goal, the following subgoals have been identified:

a. Maintain genetic variation in each Metapopulation by conserving and enhancing individual bighorn sheep *demes* (subpopulations).
b. Maintain genetic variation in and viability of individual demes by improving or increasing usable habitat and by augmenting populations.
c. Maintain habitat connectivity within and between demes.

Objectives

a. Identify and protect bighorn sheep *essential habitat* (i.e., that habitat providing forage, water, cover, and space, including movement corridors, necessary for maintenance of a viable Metapopulation);
b. Maintain, improve, and restore habitat quality within essential habitat;
c. Transplant bighorn sheep as required to reestablish lost demes or to augment demes with less than 50 individuals;

Desert Bighorn Sheep Strategy

The bighorn sheep populations within the Northern and Eastern Colorado Desert Planning Area will be managed as two metapopulations - the *Sonoran Desert Bighorn Sheep Metapopulation* and the *Southern Mojave Desert Bighorn Sheep Metapopulation* - through decisions made in this Plan and more specific plans for these two meta-populations that CDFG is developing (Map 2-17 Appendix A). Although JTNP is a cooperator to managing *the Southern Mojave Metapopulation*, CDFG has no authority or lead role for management, monitoring, or other actions on JTNP lands (as otherwise outline below) . The CDFG plans will contain considerably more detail and site-specific proposals. All objectives and actions which follow, apply to both metapopulations unless specified otherwise. Most of the actions were taken from a draft management plan prepared by

CDFG for the Sonoran Desert Bighorn Sheep Metapopulation. Work on the Southern Mojave plan has not yet commenced. At least one alternative in each action set implements BLMs Fish & Wildlife 2000 Plan entitled "Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska".

Decisions and Policy Common to all Alternatives

1. Federal agencies will not dispose of National Park lands, military lands and wilderness lands within the Planning Area.
2. When sufficient numbers of bighorn sheep are available, demes will be augmented that 1) contain less than 50 adults, and 2) have sufficient habitat to support more than 50 adults. At current population levels, these demes (Map 2-17 Appendix A) include the following:
   Sonoran Bighorn Sheep Metapopulation WHMA
      Chuckwalla Mountains
      Little Mule Mountains
   Southern Mojave Bighorn Metapopulation WHMA
      Coxcomb Mountains
      Granite Mountains
      Iron Mountains
      Palen Mountains
   CDFG will complete applicable meta-population plans and prepare a capture and relocation plans for each augmentation and will coordinate and direct operations. Approval of the BLM State Director or NPS Superintendent will be required prior to augmentation.
3. CDFG will provide regulations, permitting systems, law enforcement, and other agency action to support a sport hunting program where sustainable and where consistent with metapopulation management goals. Hunting will be permitted on BLM-administered lands, but will not be permitted in JTNP or CMAGR.
4. CDFG will continue to construct, improve, and maintain new and existing natural and artificial water sources and exclosures around them where required and coordinate such work through other agencies and volunteer groups according to CDFG standards and MOUs with BLM and CMAGR on land managed by BLM and CMAGR. *CDFG will consult with USFWS for proposed projects in desert tortoise habitat.
5. Public comment on critical issues will be solicited from established advisory councils.
6. The Desert Managers' Group will address interagency relations in the Planning Area.
7. The BLM and CDFG will coordinate all wildlife management activities in BLM wilderness areas under the MOU on "Wildlife Management Activities in Wilderness" signed in 1997.
8. Barriers to bighorn sheep movement within demes and between demes will be limited to the extent possible. Installation of new roads, fences, and other linear projects will be mitigated to consider passage of bighorn sheep.
9. BLM Park rangers and CDFG wardens will continue to inform public land visitors where appropriate about bighorn sheep conservation issues.

Planning Area-wide Decisions and Management Strategy Common to Preferred, Small DWMA A, and Small DWMA B Alternatives

1. CDFG, BLM, and NPS will jointly develop a public education plan. Educational materials might include brochures, posters, interpretive displays and signs. The BLM's Santa Rosa

Mountains Visitor Center and the JTNP Visitor Center will be primary contact points for public education for the Planning Area. Interpretive programs at the Big Morongo Reserve, Thousand Palms Preserve, Dos Palmas Reserve, BLM Information/Field Office Centers and National Parks will include information on desert bighorn sheep.

2. Plan implementation and other activities will be coordinated through the annual Northern and Eastern Colorado Desert Coordinated Management Plan Cooperator's Meeting.
3. The BLM and USMC will develop an interagency agreement for management of the Chocolate Mountains Aerial Gunnery Range as required by the California Desert Protection Act.
4. Artificial waters* proposed for construction in any given year will:
    - be submitted and considered as a group, by metapopulation, for both bighorn sheep and deer
    - be submitted in groups by June 1 so that field review can be planned, to occur in late summer/early fall for review and siting to reduce/eliminate effects upon other special status species, cultural resources, wilderness values, and optimal location for intended use, installation and operation and maintenance.
    - be supported by two levels of monitoring; population trends, and impact trends to tortoise or other special status species. The latter should include both direct (water hazard) and indirect (population dynamics/ecosystem change) monitoring.

    *Any waters built on private land in the area of overlap between the NECO and Coachella Valley Plans is outside the scope of NECO and will have to meet conditions articulated in the Coachella Valley MSCP.

    *NECO only addresses needs south of I-10 and artificial waters will generally be approved conditional to indicated monitoring support. Regardless of the number of waters installed, at such time monitoring indicates the total number of waters is adequate for bighorn sheep/deer goals or is creating landscape scale impact, the cooperating agencies will consider ending the installation program.

2.3.1 No Action Alternative

Objective a - Identify and Protect Essential Habitat

CM Continue implementation of current desert bighorn HMPs (Marble Mountains, Whipple Mountains, Sheep Hole Mountains, Chuckwalla Mountains, and Orocopia Mountains) (Map 2-4 Appendix A).

CM Continue management of the Ford Dry Lake and Rice Valley domestic sheep allotments with current boundaries (49,682 and 85,565 acres, respectively) and grazing prescriptions (Map 2-4 Appendix A).

REF See section 2.6 Issue: Land Ownership Pattern for acquisition management.

Objective b - Maintain, Improve, and Restore Habitat Quality

CM Proposals for new water developments will be considered on a case-by-case basis. Design, construction and maintenance information is included in Figures M-1 and M-2 Appendix M.

REF See section 2.4 Issue: Management of Wild Horses and Burros for management of burros inside bighorn sheep range.

Objective c - Reestablish Demes

CM Proposals to reestablish lost demes on BLM lands are addressed on as case-by-case basis and require an HMP and State director approval.

2.3.2 Preferred/Large DWMA Alternative

Objective a - Identify and Protect Essential Habitat

Action Designate essential habitat for the Sonoran Desert Bighorn Sheep Metapopulation and the Southern Mojave Desert Bighorn Sheep Metapopulation as the *Sonoran Bighorn Sheep Metapopulation Wildlife Habitat Management Area* (WHMA) and the *Southern Mojave Bighorn Metapopulation WHMA*, respectively. Map 2-18 Appendix A shows the two proposed WHMAs.

Action Delete *Marble Mountains*, *Whipple Mountains*, *Sheep Hole Mountains*, *Chuckwalla Mountains* and *Orocopia Mountains HMAPs* (Map 2-4 Appendix A) which are all captured inside the *Sonoran Bighorn Sheep Metapopulation Wildlife Habitat Management Area* (WHMA) and the *Southern Mojave Bighorn Metapopulation WHMA*.

Action Change the Multiple Use Class designation in the Eagle Mountains area on 20,600 acres of current MUC I to MUC L (18,000 acres) and MUC Unclassified (2,600 acres). The rationale for this change is 1) MUC L more appropriately supports the management goal and proposals for bighorn sheep while still allowing for the extraction of minerals, 2) MUC I supported open pit mining of iron which terminated over a decade ago, including the dismantling of the associated milling facility, 3) mineral market conditions are such that remaining mineral potential (mostly iron and gold) is currently uneconomical, and 4) gold deposits are in the form of veins, the extraction of which would most likely not involve the open pit methods. This applies to public lands only. See Map 2-7 Appendix A.

Action Fence potential hazards to bighorn sheep (e.g, canals, pitfalls) with substantial fencing materials (e.g., chainlink).

Action Eliminate the Ford Dry Lake Allotment (49,682 acres) because it is less than 9 miles from occupied bighorn range in the Palen Mountains. BLM guidelines given in Appendix C of the BLM's *Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska* (see Appendix J) require a 9-mile buffer between bighorn sheep and domestic sheep unless there is a significant barrier to physical contact.

Action Reduce the area of Rice Valley Allotment from 85,565 acres to 76,301 acres, eliminating 9,264 acres in the southern part of the lease for potential grazing use (Map 2-15Appendix A). The area of the allotment eliminated is within 9 miles of current occupied range in the Granite and Palen demes. BLM guidelines given in Appendix C of the BLM's *Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska* (see Appendix J of this document) require a 9-mile buffer between bighorn sheep and domestic sheep unless there is a significant barrier to physical contact.

Action In areas managed for any combination of burros, deer, and bighorn sheep, natural waters will be allocated to each species on an equal shares basis. Such allocations will improve the opportunity of achieving viable populations of each species, prevent over-utilization of both forage and water, reduce conflicts from contact and improve the efficiency of gathering burros. This allocation only addresses the indicated species and does not mean fundamental exclusion of other elements of the ecosystem. Allocations would be achieved through installation of exclosures that allow access to waters for deer and bighorn sheep and prevent access to burros. However, a specific fencing proposal is not addressed in this plan but is deferred until the number of burros reaches appropriate management level and a monitoring base has been established to include such information as animal numbers and water and forage utilization. Design, construction and maintenance information for exclosures is included in Figures M-1 and M-2 Appendix M.

REF See section 2.5 Issue: Designation of Routes of Travel for description of route closures.

REF See section 2.6 Issue: Land Ownership Pattern for description of land acquisition management.

REF See section 2.2 Issue: Recovery of the Desert Tortoise for prescriptions relating to reduction of surface disturbance which cover parts of bighorn sheep range.

Objective b - Maintain, Improve, and Restore Habitat Quality

Action New water developments will be constructed to expand usable habitat. Some existing artificial water sources will also be removed over time. These include all nine windmills (which are no longer functional) and some pipe-tanks facilities which are old, high maintenance, have too little storage capacity, and are redundant to proposed new facilities. An unspecified number of those to be removed are located in wilderness areas. Map 2-19 Appendix A shows 87 prospective areas in the *Sonoran Bighorn Sheep Metapopulation WHMA* identified by CDFG with the assistance of bighorn conservation groups for new water developments. There are 58 sites common to both deer and bighorn sheep (see section 2.3.6). Design, construction and maintenance information is included in Figures M-1 and M-2 Appendix M. Proposed sites have been generally mapped. Twenty two sites proposed are located inside wilderness areas. Many more are located near the boundaries of wilderness areas. This location pattern was developed to best meet the objective with the minimum necessary inclusion in wilderness areas. Final sites selected will conform to the above mentioned numbers. Project-level environmental assessments will be written for sites when selected.

REF See section 2.4 Issue: Management of Wild Horses and Burros for management of burros inside bighorn sheep range.

Objective c - Reestablish Demes

Action After burro and domestic sheep conflicts are resolved and when sufficient numbers of bighorn sheep are available, reestablish the following lost demes (Maps 2-17 and 2-18 Appendix A):

Sonoran Bighorn Sheep Metapopulation WHMA
- Cargo Muchacho Mountains
- Mule Mountains
- Palo Verde Mountains

CDFG will prepare a capture and relocation plan for each reestablishment and will coordinate and direct operations. Approval of the BLM State Director will be required prior to reestablishment.

2.3.3 Small DWMA A Alternative

Objective a - Identify and Protect Essential Habitat

Action Designate essential habitat for the Sonoran Desert Bighorn Sheep Metapopulation and the Southern Mojave Desert Bighorn Sheep Metapopulation as the *Sonoran Bighorn Sheep Metapopulation Wildlife Habitat Management Area* (WHMA) and the *Southern Mojave Bighorn sheep Metapopulation WHMA*, respectively. Map 2-18 Appendix A shows the two proposed

WHMAs.

Action Delete *Marble Mountains, Whipple Mountains, Sheep Hole Mountains, Chuckwalla Mountains* and *Orocopia Mountains HMPs* (Map 2-4 Appendix A) which are all captured inside the *Sonoran Bighorn Sheep Metapopulation Wildlife Habitat Management Area* (WHMA) and the *Southern Mojave Bighorn Metapopulation WHMA*.

Action Change the Multiple Use Class designation in the Eagle Mountains area on ( ) acres of current MUC I to MUC L where current MUC I is concurrent with the proposed WHMA (Map 2-12 Appendix A). The rationale for this change is 1) MUC L more appropriately supports the management goal and proposals for bighorn sheep while still allowing for the extraction of minerals, 2) MUC I supported open pit mining of iron which terminated over a decade ago, including the dismantling of the associated milling facility, 3) mineral market conditions are such that remaining mineral potential (mostly iron and gold) is currently uneconomical, and 4) gold deposits are in the form of veins, the extraction of which would most likely not involve the open pit methods. This applies to public lands only.

Action Where they occur, wild burros will be fenced out of all natural and artificial waters within currently *occupied range* of the *Sonoran Bighorn Sheep Metapopulation WHMA* or the *Southern Mojave bighorn Metapopulation WHMA*. Design, construction and maintenance information is included in Figure M-1 and M-2 Appendix M. Site specific assessments will be prepared when sites are selected.

Action Eliminate the Ford Dry Lake Allotment (49,682 acres) because it is less than 9 miles from occupied bighorn range in the Palen Mountains (Map 2-13 Appendix A). BLM guidelines given in Appendix C of the BLM's *Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska* (see Appendix J of this document) require a 9-mile buffer between bighorn sheep and domestic sheep unless there is a significant barrier to physical contact.

Action Eliminate Rice Valley Allotment to reestablish the Little Maria Mountain deme (Map 2-13 Appendix A). The allotment is within 9 miles of proposed deme. BLM guidelines given in Appendix C of the BLM's *Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska* (see Appendix J of this document) require a 9-mile buffer between bighorn sheep and domestic sheep unless there is a significant barrier to physical contact.

Objective b - Maintain, Improve, and Restore Habitat Quality

REF Same as the Preferred/Large DWMA Alternative.

Objective c - Reestablish Demes

REF Same as the Preferred/Large DWMA Alternative.

2.3.4 Small DWMA B Alternative

Objective a - Identify and Protect Essential Habitat

REF Same as Preferred Alternative.

Objective b - Maintain, Improve, and Restore Habitat Quality

Action Construct new water developments outside of designated wilderness areas as generally described below (not shown on a map) to expand usable habitat in the *Sonoran Bighorn Sheep Metapopulation WHMA*:

Location	No.
Little Chuckwalla Mountains	1
Between Hwy 78 and I-8	3
Chocolate Mountains (west side)	3
Little Mule Mountains	1
Orocopia Mountains	1
Little Picacho Mountains	1
Chuckwalla Mountains (north side)	2
Mule Mountains (to reestablish deme)	3
Palo Verde Mountains (to reestablish deme)	3
Cargo Muchacho Mountains (to reestablish deme)	3

Some existing artificial water sources will also be removed over time. These include all nine windmills (which are no longer functional) and some pipe-tanks facilities which are old, high maintenance, have too little storage capacity, and are redundant to proposed new facilities. An unspecified number of those to be removed are located in wilderness areas. Fewer of these existing facilities would be removed than proposed in the Preferred/Large DWMA Alternative, however, because so few new waters are proposed. Some of these new water developments will benefit deer (see section 2.3.8). Design, construction and maintenance information is included in Figures M-1 and M-2 Appendix M. Agencies will attempt to site new water developments at least 1/4 mile from open routes or washes.

REF See section 2.4 Issue: Management of Wild Horses and Burros for management of burros inside bighorn sheep range.

Objective c - Reestablish Demes

REF Same as the Preferred/Large DWMA Alternative.

Goal and Objective of Desert Mule Deer Management

Desert mule deer are a native species, but they are not a special status species. Deer are included in this section primarily because they are managed as a game species and artificial waters are proposed to support their population. Deer will potentially benefit from prescriptions related to protecting and enhancing habitat for both bighorn sheep and other special status animal and plant species, however management of mule deer are not dependent on designation of DWMAs or WHMAs.

Objective

a. Maintain genetic variation in and viability of individual demes by improving or increasing usable habitat and by augmenting populations.
b. Provide for the aesthetic, educational, and recreational uses of desert mule deer.

Desert Mule Deer Strategy

The desert mule deer populations within the Northern and Eastern Colorado Desert Planning Area will be managed as two populations identified by their current CDFG hunting zone designation: D-12 and D-17. Desert mule deer will continue to be conserved as a native species and managed as a game species. CDFG is currently rewriting the deer conservation and management plan for both of these herds in a document known as the Deer Management Plan for Deer Assessment Unit 11. When completed the CDFG plan will contain considerably more detail and site-specific proposals. While deer is a native species found in JTNP and CMAGR, hunting is not allowed on those lands. In addition, in JTNP there is no game management consideration for deer, including artificial waters, but there is in CMAGR in support of hunting that occurs outside CMAGR. Therefore, the bulk of this strategy is limited to BLM and CMAGR lands.

Decisions and Policy Common to all Alternatives

1. Manage deer in deer habitat throughout its range as currently delineated in the State's D-12 Deer Action Unit and manage harvesting through hunting. CDFG will provide regulations, permitting systems, law enforcement, and other action to support a hunting program where sustainable and consistent with Metapopulation management goals.
2. CDFG will continue to construct, improve, and maintain existing natural and artificial water sources and exclosures around them where required and coordinate such work through other agencies and volunteer groups according to CDFG standards and MOUs with BLM and CMAGR.

Planning Area-wide Decisions and Management Strategy Common to Preferred, Small DWMA A, and Small DWMA B Alternatives

1. Artificial waters proposed for construction will be considered as grouped proposal and environmental assessment on a yearly basis for administrative efficiency. A monitoring summary (population trends, and effects of waters) will be included to help support the annual proposal and the full strategic number and patter for the metatpopulation as outlined

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in the Plan. Since about half of the proposed artificial waters for bighorn sheep and desert mule deer are mutually beneficial, they will also be considered simultaneously. In this plan new artificial waters are proposed only for the *Sonoran Desert Bighorn Sheep Metapopulation*. Proposals for the *Southern Mojave Desert Bighorn Sheep Metapopulation*, including JTNP, will be considered at a later date.

2.3.5 No Action Alternative

Objective a -Provide for the aesthetic, educational, and recreational uses of desert mule deer.

CM Proposals for new water developments for burro deer are considered on a case-by-case basis. Design, construction and maintenance information is included in Figures M-1 and M-2 Appendix M.

2.3.6 Preferred Alternative

Objective a -Provide for the aesthetic, educational, and recreational uses of desert mule deer.

Action New water developments will be constructed to expand usable habitat. Map 2-19 Appendix A shows 108 prospective areas in the Planning Area identified by CDFG with the assistance of bighorn conservation groups for the new water developments. Of the 108, 58 are common to both deer and bighorn sheep. (See bighorn sheep 2.3.2 objective b for additional information). Design, construction and maintenance information is included in Figures M-1 and M-2 Appendix M. Proposed sites have been generally mapped. Eight sites proposed are located inside wilderness areas. Many more are located near the boundaries of wilderness areas. This location pattern was developed to best meet the objective with the minimum necessary inclusion in wilderness areas. Final sites selected will conform to the above mentioned numbers. Project-level environmental assessments will be written for sites when selected.

2.3.7 Small DWMA A Alternative

Objective a -Provide for the aesthetic, educational, and recreational uses of desert mule deer.

Action Same as the Preferred Alternative.

2.3.8 Small DWMA B Alternative

Objective a -Provide for the aesthetic, educational, and recreational uses of desert mule deer.

Action Construct 21 artificial waters for deer over the next several years (Figures M-1 and M-2 Appendix M). Use would be common to both deer and bighorn sheep at all sites. (See bighorn sheep 2.3.4 objective b for additional information).

Goals and Objectives of Other Special Status Animal and Plant Species and Natural Communities & Ecological Processes

a. PLANTS AND ANIMALS - Maintain the naturally occurring distribution of 28 special status animal species and 30 special status plant species in the Planning Area. For bats, the term "naturally occurring" includes those populations that might occupy man-made mine shafts and adits.

b. NATURAL COMMUNITIES - Maintain proper functioning condition in all natural communities with special emphasis on communities that a) are present in small quantity, b) have a high species richness, and c) support many special status species.

c. ECOLOGICAL PROCESSES - Maintain naturally occurring interrelationships among various biotic and abiotic elements of the environment.

Objectives

a. Protect and enhance habitat

b. Protect connectivity between protected communities

Decisions and Policy Common to all Alternatives

1. Activities or projects authorized at or within 1 mile of a significant roost site shall have mitigation measures applicable to the bat species present and the project. Mitigation might include seasonal restrictions, light abatement, bat exclusion, and gating of alternate sites. If bats are to be excluded from an old mine prior to renewed mining, the exclusion must be performed at a non-critical time for the species present by a qualified bat biologist. Mitigation plans for large mines shall consider retaining some shafts and adits or creating new ones as compensation.
2. Within suitable habitat within the distribution of flat-tailed horned lizard, all applicable actions in the *Flat-tailed Horned Lizard Conservation Strategy* (FTHL Strategy available in BLM Riverside and El Centro offices) shall be applied. These include the following:
    1) Where occupied flat-tailed horned lizard habitat is identified, apply mitigation measures specified in the FTHL Strategy;
    2) Require compensation for disturbance of habitat at 1 acre acquired for each acre disturbed, which is the rate outside of FTHL Management Areas; and
    3) Document all habitat disturbance according to an interagency protocol.
3. Public comment on critical issues shall be solicited from the California Desert Advisory Council for actions on BLM lands and from the Advisory Commission for lands in JTNP. The NEPA process shall be used to provide information to the public and to solicit comments on proposed projects occurring on federally administered lands in the Planning Area.
4. The Desert Managers Group shall continue to provide strategic fiscal planning and shall oversee activities of the Integrated Ecosystem Coordinator, the Public Information Coordinator, and the Habitat Restoration Coordinator. The Desert Managers Group shall address interagency relations in the Planning Area.
5. The BLM and CDFG will coordinate all wildlife management activities in wilderness under the MOU (available in all BLM offices) on "Wildlife Management Activities in Wilderness" signed in 1997.

Planning Area-wide Decisions and Management Strategy Common to Preferred, Small DWMA A, and Small DWMA B Alternatives

Various actions to benefit desert tortoise will add protection to special status species and natural communities within DWMAs depending upon the alternative selected. Additionally, there are many other important issues which will add additional commitment to the conservation of special status species and natural communities. These include, but are not limited to the following:

1. CDFG, BLM, and NPS will jointly develop a public education plan. Educational materials might include brochures, posters, interpretive displays and signs. The BLM's Santa Rosa Mountains Visitor Center and the JTNP Visitor Center will be primary contact points for public education for the Planning Area. Interpretive programs at Big Morongo Reserve, Thousand Palms Reserve, Dos Palmas Reserve, and National Parks will include topics such as needs of special status species, vegetation restoration, fire ecology, and off-highway vehicle use. BLM rangers, Park rangers, and CDFG wardens will continue to inform public land visitors on these issues.
2. A Northern and Eastern Colorado Desert Coordinated Management Plan Cooperator's Meeting shall be held at least annually. The agenda shall include a review of implementation actions in this plan, population trends as indicted by monitoring, progress in research actions, status of public education programs, and cumulative new surface disturbance. Each of the cooperating agencies- BLM, NPS, USMC, USFWS, CDFG - shall have an official representative present at the meetings. The general public, interest groups, and other agencies shall be invited and shall be given time on the agenda to comment on plan implementation.
3. The BLM and USMC shall develop an interagency agreement for management of the Chocolate Mountains Aerial Gunnery Range as required by the California Desert Protection Act.
4. Within one year after completing the plan, BLM and NPS will jointly develop and submit a monitoring plan to USFWS to assure that casual uses or other human activity are not affecting known occurrences of Coachella Valley Milkvetch.
5. During project construction, special effort shall be made to avoid disturbance of populations of any special status plant; avoidance shall be strongly encouraged. Where plants cannot be avoided, the effects of the project on the species as a whole will be assessed. If the project is not likely to jeopardize the species or lead to the need to list a candidate or sensitive species, the project may be approved. Disturbance of a listed plant species will not be allowed. Consideration shall be given to transplanting, seed collection and propagation, careful seedbed removal and replacement, and long-term, rigorous post-project monitoring of plant population recovery. Where a project approaches a population of a special status plant, permanent or temporary fencing shall be strongly considered.

2.3.9 No Action Alternative

Objective a - Protect and enhance habitat

CM Habitat of each special status species and each natural community shall be protected using existing land use policies, designations such as existing MUC and ACECs, [Bigelow cholla, Desert Lily Preserve, Chuckwalla Bench, Corn Springs, Chuckwalla Valley Dune Thicket and Dos Palmas], Fallback Guidelines and by developing activity plans for proposed *Habitat Management Plans* from the CDCA plan that have not yet been prepared. These HMPs (Map 2-4 Appendix A) include: Chemehuevi Wash, Vidal Wash, Whipple Mountains, Eagle Mountains bighorn habitat, Coxcomb Mountains bighorn habitat, Granite/Palen Mountains bighorn habitat, Rice Valley Dunes, McCoy Wash, Ford Dry Lake, Palo Verde Mountains and Indian Wash.

CM Impacts of proposed projects in suitable habitat within the range of a special status species and within natural community types shall be mitigated using commonly applied mitigation measures.

CM Standard mitigation practices for protection of raptors throughout the Planning Area shall be applied to construction of all new electric utility lines. Among these measures are the following: conductor spacing greater than 5 feet and/or perch guards or artificial perches on metal or unsafe crossarms. Mitigation techniques may be found in *Suggested Practices for Raptor Protection on Power Lines* (Olendorff 1981). In areas of heavy raptor use, electrical distribution lines should be retrofitted appropriately.

CM Mitigation measures protecting raptors (and other birds) throughout the Planning Area shall be applied to cyanide-leaching mines. Measures shall include, but are not limited to, the following: 1) piping of cyanide solutions, 2) placement of balls or nets over pregnant ponds, and 3) use of drip-irrigation with no standing water on leach pads.

CM The following dunes and playas (see Maps 2-20 and 3-3 Appendix A) in the Planning Area are designated as "open" or "closed" to vehicle use regardless of the underlying multiple-use class (they are listed in Table 9 in the Motorized-Vehicle Access Element of the CDCA Plan and are given for information only):

Ford Dry Lake (portion of)	MUC M	Open
Cadiz Dunes	MUC L	Closed
Rice Valley Dunes (portion of)	MUC M	Open

Objective b - Protect connectivity between communities

CM The route designation process shall consider fragment size. A fragment is defined as an area unbisected by route or linear disturbance.

2.3.10 Preferred/Large DWMA Alternative
Objective a - Protect and enhance habitat

Action Designate sixteen (542,443 acres) Multi-species WHMAs such that approximately 80 percent of the distribution of all special status species and all natural community types are included in the Multi-species Conservation Zone (Map 2-21 Appendix A). See Appendix H for a description of the process used to define the WHMA and the concept of conservation zones.

Action Delete the following unwritten HMPs: Fenner/Chemehuevi Valleys, Chemehuevi Wash, Vidal Wash, Eagle Mountains, Granite-Palen Mountains, Rice Valley Dunes, McCoy Wash, Chuckwalla Bench, Ford Dry Lake, Palo Verde Mountains, Indian Wash, Algodones Dunes and Coxcomb Mountains.

Action Mitigate impacts of proposed projects in suitable habitat within the range of a special status species and within natural community types using commonly applied mitigation measures and conduct surveys for special status species as follows (also see range maps 3-6a-f and 3-7a-f Appendix A):

- Most Animals: Only within Multi-species Conservation Zone.
- Plants with ranges mapped: Within ranges for species with range maps. Ranges may be both in and outside Multi-species Conservation Zone.

- Other: At all species locations in the Planning Area (see CM for special status species and special measures below for selected species or species groups).
  Special mitigation measures shall be applied as given below for each species or species group.

Action Bat *gates* shall be constructed on caves or mine roosts only where there is significant potential for negative effects from human intrusion. Gates shall be constructed according to the most recent techniques considering human and bat passage, susceptibility to vandalism, and cost. Gates shall be inspected and maintained regularly. On BLM-managed lands placement of gates will include right-of-way protection unless sites are already afforded such protection.

Action All riparian habitat or permanently flowing streams within 5 miles of a maternity roost for Townsend's big-eared bat shall have a riparian proper functioning condition analysis and receive annual inspection and monitoring report. Those riparian/stream sites degraded by use or exotic plants or otherwise not functioning properly shall receive treatment and/or protection to restore it to proper functioning condition.

Action Closure of any route within 1/4 mile of any significant bat roost shall be strongly considered.

Action Throughout the Planning Area, closure of any route within 1/4 mile of a prairie falcon or golden eagle eyrie (cliff nests) shall be strongly considered.

Action OHV races, construction activities, blasting, and similar activities shall not be authorized within 1 mile of a prairie falcon or golden eagle eyrie between February 15 through June 15.

Action Habitat for elf owls at Corn Springs shall be improved by removing all remaining tamarisk to elevate water table, controlling starlings, planting cottonwoods, adding nest boxes or wood poles until cottonwoods mature, and minimizing groundwater pumping. (Other special status species benefitting might include vermilion flycatcher and Gila woodpecker).

Action Limit construction activity period to September 1 - February 1 if burrowing owls are present in a project area.

Action Harvest of live vegetation, especially cactus and yuccas, shall be prohibited in the Multi-species Conservation Zone to protect perching and nesting sites for thrashers.

Action Limit construction activity period to July 1 - December 1 if Crissal thrashers are present in a project area.

Action The following dunes and playas (see Map 2-20 Appendix A) shall be closed under CFR 8342 to vehicle use (except for routes designated open or limited) to protect essential blowsand habitat or sand source for populations of Mojave fringe-toed lizard. The following changes shall be made to Table 9 in Motorized-Vehicle Access Element of the CDCA Plan:

Palen Dunes	MUC M	Closed
Rice Valley Dunes	MUC M	Closed
Ford Dunes	MUC M	Closed
Palen Dry Lake	MUC L & M	Closed
Ford Dry Lake (portion of)	MUC M	Closed

See Section 2.5 Objective a for additional information.

Action On those playas which are designated MUC I for salt mining (Bristol, Cadiz, and the western half of Danby), areas of playa habitat with little to no mining infrastructure will be managed through design and rehabilitation of mining operations and other uses to mitigate alteration of natural ecological processes - primarily episodes of water flooding and ponding. This prescription will serve until either 1) the level of mining operations is significantly increased from the relatively low, constant level of activity of the past five decades; and 2) the level of knowledge is increased about the natural history of the specific playa environments and effects of salt mining operations - positive or negative.

Action Special mitigation measures avoiding disturbance of habitat of Couch's spadefoot toad shall be strongly considered in all projects. Ephemeral impoundment areas should not be disturbed by vehicles or other activities in order to maintain soil percolation rates and preserve microfauna. Surface flow to such impoundments should not be blocked by projects.

Action Closure of any route within 1/4 mile of a site of known occurrence of Couch's spadefoot toad shall be strongly considered.

Action Install permanent fencing where unauthorized vehicle use is observed in temporary impoundment areas for Couch's spadefoot toad. These areas have not yet been identified.

Action Closure of any route within 1/4 mile of a natural or artificial water source (e.g., springs, seeps, stream, guzzler) shall be strongly considered.

Action Closure of "redundant" routes shall be strongly considered.

Action In the Multi-species WHMA, compensation for disturbance of Desert Dry Wash Woodland and Desert Chenopod Scrub communities as shown on Map 3-3 Appendix A shall be required at 3 acres for each acre disturbed. Equivalent funds may be directed toward community enhancement or rehabilitation. For compensation for habitat disturbance within DWMAs, see section 2.2 Issue: Recovery of the Desert Tortoise Recovery, Small DWMA A.

Action In Sand Dune and Playa communities as shown on Map 3-3 Appendix A that are closed to vehicle use, compensation for surface disturbance shall be required at 3 acres for each acre disturbed. Compensation will not be required for existing salt mining operations on playas managed under MUC I. Equivalent funds may be directed toward community enhancement or rehabilitation. For compensation for habitat disturbance within DWMAs, see section 2.2 Issue: Recovery of the Desert Tortoise Recovery, Small DWMA A.

Action Springs and Seep communities in need of rehabilitation or protection shall be improved through a number of means: removing tamarisk, controlling starlings, planting native species, adding nest boxes or wood poles until cottonwoods mature, adding fencing to exclude livestock and burros, discontinuing water diversions. These needs and measures would vary by the known or predicted occurrence of various species of concern. Where necessary habitat improvements shall be protected by right-of-way. Map 2-22 Appendix A indicates 45 sites are in need of tamarisk removal and 93 sites may need exclosures for cattle and burros (those within leases or herd areas), although these numbers may vary somewhat after performing on-site evaluations.

Action Construction projects will not disturb spring and seeps during duration of project.

Action BLM will acquire private and SLC lands outside NPS with known occurrence out to one mile from each occurrence of Coachella Valley Milkvetch.

REF See section 2.5 Issue: Designation of Routes of Travel for description of route closures.

REF See section 2.6 Issue: Land Ownership Pattern for description of land acquisition management.

Objectives b - Protect connectivity between communities

Action The route designation process shall consider fragment size. A fragment is defined as an area unbisected by route or linear disturbance.

Action The fragmenting affects of projects should be considered in the placement, design, and permitting of new projects.

REF See section 2.5 Issue: Designation of Routes of Travel for description of route closures.

2.3.11 Small DWMA A Alternative

Objective a - Protect and enhance habitat

Action Same as Preferred Alternative with following exceptions:

Action Designate eighteen (812,323 acres) Multi-species WHMAs such that approximately 80 percent of the distribution of all special status species and all natural community types are included in the Multi-species Conservation Zone (Map 2-23 Appendix A). See Appendix H for a description of the process used to define the WHMA and the concept of conservation zones.

Action Bat gates shall be constructed on all caves or mine roosts where entry would pose a hazard to humans or bats outside of CMAGR. Gates shall be constructed according to the most recent techniques considering human and bat passage, susceptibility to vandalism, and cost. Gates shall be inspected and maintained regularly. On BLM-managed lands placement of gates will include right-of-way protection unless sites are already afforded such protection.

Action All significant roost sites shall be withdrawn, at generally 2.5 acres per site, from mineral entry, subject to valid existing rights.

Action In Sand Dune and Playa communities as shown on Map 3-3 Appendix A that are closed to vehicle use, compensation for surface disturbance shall be required at 3 acre for each acre disturbed. Compensation will not be required for existing salt mining operations on playas managed under MUC I. Equivalent funds may be directed toward community enhancement or rehabilitation.

Objectives c - Protect connectivity between communities

Action Same as Preferred Alternative.

2.3.12 Small DWMA B Alternative

Objective a - Protect and enhance habitat

Action Same as Preferred Alternative with following exceptions:

Action Designate twelve (512,455 acres) Multi-species WHMA s such that approximately 50 percent of the distribution of special status species and natural community types are included in the following combined areas: 1) Joshua Tree National Park, 2) Chocolate Mountains Aerial Gunnery Range, 3) designated wilderness 4) proposed DWMAs (see section 2.2 Issue: Recovery of the Desert Tortoise Small DWMA B), and 5) the newly defined Multi-species WHMA (Map 2-24 Appendix A). These combined areas are hereafter referred to as the Multi-species Conservation Zone. Actions applied to the Multi-species WHMA will generally be pro-active and use-guiding rather than use-prohibiting. See Appendix H for a more precise definition of the WHMA.

Action Construction will not be limited to period between July 1 and December 1 in Conservation Zone when Crissal thrashers are present.

Action Fencing will not be considered where unauthorized vehicle use is observed in temporary impoundment areas for Couch's spadefoot toad.

Action In the Multi-species WHMA, compensation for disturbance of Desert Dry Wash Woodland and Desert Chenopod Scrub communities as shown on Map 3-3 Appendix A shall be required at 1 acre for each acre disturbed. Equivalent funds may be directed toward community enhancement or rehabilitation. For compensation for habitat disturbance within DWMAs, see section 2.2 Issue: Recovery of the Desert Tortoise Recovery, Small DWMA A.

Action In Sand Dune and Playa communities as shown on Map 3-3 Appendix A that are closed to vehicle use, compensation for surface disturbance shall be required at 1 acre for each acre disturbed. Compensation will not be required for existing salt mining operations on playas managed under MUC I. Equivalent funds may be directed toward community enhancement or rehabilitation.

Action On Bristol Dry Lake (designated MUC I for salt mining), areas of playa habitat with little to no mining infrastructure will be managed through design and rehabilitation of mining operations and other uses to mitigate alteration of natural ecological processes - primarily episodes of water flooding and ponding. This prescription will serve until either 1) the level of mining operations is significantly increased from the relatively low, constant level of activity of the past five decades; and 2) the level of knowledge is increased about the natural history of the specific playa environments and effects of salt mining operations - positive or negative.

Objectives c - Protect connectivity between communities

Action Same as Preferred Alternative.

2.4 Issue: Wild Horses and Burros

Managing wild burros along the Colorado River is a joint responsibility for BLM offices in California and Arizona. Management is further complicated by a complex land ownership pattern which includes three national wildlife refuges, one state recreation area, private lands (which include farmlands), Metropolitan Water District lands, and the Chemehuevi and Colorado River Indian tribal lands. As these jurisdictions are mostly adjacent to the Colorado River, they tend to have concentrations of wild burros during the summer months when water availability is limited to upland areas. Burros which range both on and off BLM public lands (as is the case throughout the NECO Planning Area), are subject to the Wild, Free-Roaming Horse and Burro Act of 1971.

Two Herd Management Areas (HMAs), Havasu and Cibola-Trigo, established by Arizona BLM, exist on both sides of the Colorado River. Only the portions of each that are located on the California side are affected by the NECO Plan.

BLM's land use plans for the above-indicated California and Arizona BLM offices are proposed to be amended for their Wild Horses and Burros components because of the recommendations of *Desert Tortoise Recovery Plan,* the Pierson Report (see goal c) and conflicts with other uses.

The *Desert Tortoise Recovery Plan* recommends no burro grazing in DWMAs. The burros also share habitat used by bighorn sheep and deer. There are increasing concerns over forage competition between burros and deer, and even greater concern over competition between burros and bighorn sheep for available water in the uplands.

The reader is also referred to Issues 2.1 (Standards and Guidelines), 2.3 (Bighorn Sheep and Deer), and 2.2 (Recovery of the Desert Tortoise) for related issues and solutions. No permanent management facilities for wild burros (water developments, exclosures) are proposed at this time. At such time as burro populations reach appropriate management levels (AMLs) in herd management areas (HMAs), the need for these facilities will be evaluated. Methods, locations, and facilities related to the gathering and holding of captured burros, both temporary and permanent, will be utilized and specifically addressed in updated herd management area plans (HMAPs) and gathering plans which will follow the NECO Plan. Development of these documents also includes public review.

Goals for Managing Wild Burros

a. Manage wild burro herds for healthy viable populations in a thriving natural ecological balance.

b. Address the inconsistencies and complexities of management plans and program administration between California and Arizona BLM to better implement the BLM's management responsibilities under P.L. 92-195 and better accomplish the missions and mandates which govern other administrated lands.

c. Follow the recommendations from the Wild Horse and Burro Emergency Evaluation Team, commonly known as the Pierson Report. The team recommended, to combine multiple HMAs to recognize an entire herd and designate only one field office be responsible for management of a herd.

Objectives

a. Combine and adjust the boundaries and AMLs for herds and management units that are common to California and Arizona administrations and designate a single BLM field office to manage them to resolve management issues and improve program administration.

Change in Terminology and CDCA Plan

The following is a list of terms used to define wild horse and burro management. Some of this terminology represents a change in terminology used in the CDCA Plan and described in Chapter 3 (See section 3.8 for definitions and the relationships to the out of date terms). The correct terminology is used in planning documents developed by BLM in Arizona for that portion of the California Desert within its jurisdiction.

1 *Herd Area* (HA)
2. *Herd Management Area* (HMA)
3. *Appropriate Management Level* (AML)
4. Herd Management Area Plan (HMAP)

Additional Points of Management

The following additional notes of management are provided to help clarify details of management not addressed in the NECO Plan but are related to land use plan implementation.

HMAPs and Unitized Program Administration
Upon completion of the NECO Plan new HMAPs will be written which will replace the separate California and Arizona HMAPs. HMAPs contain the details of managing herds of wild horses and burros which are not contained in land use plans. Along with the writing of HMAPs, agreements will have to be developed between the BLM offices in California and Arizona for the combined program administration.

Gathering Operations and Plans
Gathering plans will be written and approved prior to conducting gathering operations. These plans may address time of year of operations; use of facilities and wranglers on horses; access into HMAs and other areas - including wilderness areas, refuges, lands managed by other agencies and private lands; and use of water/air/wheeled craft to help herd and haul animals.

2.4.1 No Action Alternative
Objectives a - Combine Common Herds and Management Units

CM Manage all HMAs with current boundaries and AMLs as separately set in current California and Arizona land use and program management plans. (Table 2-10) (Map 2-25 Appendix A). Manage Piute Mountain HA for zero burros.

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Table 2-10

Herd Management Area (HMA)*	Appropriate Management Level (AML)
Chemehuevi HMA (CA)	150 (a single herd and AML are common to both HMAs)
Havasu HMA (AZ)	
Chocolate/Mule Mts. HMA (CA)	22 (California), 190 (Arizona) (a single herd is common to both HMAs, each of which has separate AMLs
Cibola/Trigo HMA (AZ)	
Picacho HMA (CA)	~~AML:~~ 42 horses

2.4.2 Preferred/Large DWMA Alternative

Objective a - Combine and Adjust Common Herds and Management Units

Action Combine Chemehuevi and Havasu HAs and HMAs into a single burro HA and single burro HMA to be named *Chemehuevi HA* and *HMA* and modify the new HMA boundary to more accurately reflect burro use and reduce conflicts in the northern portion of the Chemehuevi Indian Reservation, the Havasu National Wildlife Refuge (NWR), and with issues defined in sections 2.2 and 2.3. The new HMA is reduced from a current combined 485,846 acres to 147,630 acres (Map 2-26 Appendix A). Reduce the current AML of 150 to a current management level of 108, which shall remain in effect until a new AML is established through monitoring of habitat and population. Reductions center primarily on the NWR and tribal land.

Action Eliminate the Picacho HMA for horses.

Action Combine historical burro range (see Chapter 3) and Chocolate/Mule Mountains and the Cibola-Trigo HAs and HMAs into a single burro HA and a single burro HMA to be named *Chocolate/Mule Mountains HA and HMA* and modify the boundary to more accurately reflect burro use and reduce conflicts in the Cibola and Imperial national wildlife refuges (NWRs) Fish and Wildlife Service lands, CMAGR, Picacho State Recreation Area (SRA), and with issues defined in sections 2.2 and 2.3. The new HMA is reduced from a current combined 422,598 acres to 223,542 acres(Map 2-26 Appendix A). Reduce the current combined AML of 212to a single current management level of 121, which shall remain in effect until an AML is established through monitoring of habitat and population. Reductions center primarily on the NWRs, SRA, and CMAGR.

2.4.3 Small DWMA A Alternative

Objectives a - Combine and Adjust Common Herds and Management Units

Action Eliminate the Chemehuevi, Havasu, Chocolate/Mule Mountains, Cibola-Trigo and Picacho HMAs to eliminate conflicts which stem from a land pattern issue in which there are many entities which do not share burro management mandates (NWRs, SRA, CMAGR, private farmlands). (Map 2-27 Appendix A).

Action Combine the Chemehuevi and Havasu HAs into a single burro HA to be named *Chemehuevi HA*.

Combine the Chocolate/Mule Mountains, Cibola-Trigo, and historic burro range (see Chapter 3) into a single burro HA to be named *Chocolate/Mule Mountains HA* (Map 2-27 Appendix A).(HAs cannot be eliminated by law but can be managed for zero populations.)

2.4.4 Small DWMA B Alternative

Objectives a - Combine and Adjust Common Herds and Management Units

Action Combine Chemehuevi and Havasu HAs and HMAs into a single burro HA and single burro HMA to be named *Chemehuevi HA* and *HMA*. and modify the new HMA boundary to more accurately reflect burro use and reduce conflicts in the northern portion of the Chemehuevi Indian Reservation, the Havasu National Wildlife Refuge (NWR), and with issues defined in sections 2.2 and 2.3. The new HMA is reduced from a current combined 485,846 acres to 263,021 acres (Map 2-28Appendix A). Retain the current AML of, which shall remain in effect until a new AML is established through monitoring of habitat and population. The relatively small reduction in acres allows continuation of current management level

Action Eliminate the Picacho HMA for horses.

Action Combine historical burro range (see Chapter 3) and Chocolate/Mule Mountains and the Cibola-Trigo HAs and HMAs into a single, burro HA and a single burro HMA to be named *Chocolate/Mule Mountains HA and HMA* and modify the boundary to more accurately reflect burro use and reduce conflicts in the Cibola and Imperial national wildlife refuges (NWRs), CMAGR, Picacho State Recreation Area (SRA), and with issues defined in sections 2.2 and 2.3. The new HMA is reduced from a current combined 422,598 acres to 274,811 acres (Map 2-28 Appendix A). Reduce the current combined AML of 212 to a single current management level of 138, which shall remain in effect until an AML is established through monitoring of habitat and population. Reduction center primarily on the NWRs, SRA, and CMAGR.

Action Establish the *Piute Mountain HMA* (39,780 acres) at a current population level of 37 burros until an AML is established through monitoring of habitat and population.(Map 2-28 Appendix A).

2.5 Issue: Motorized-Vehicle Access / Routes of Travel Designations / Recreation

In the California Desert, motorized-vehicle access and recreation enjoy a close relationship whether motorized travel is the focus of recreational activities (e.g., driving for pleasure, participating in dual-sport motorcycle events, or racing in organized events) or simply a means of getting to recreation sites such as campgrounds and trailheads. Routes of travel designations directly influence opportunities for recreation while, at the same time, affect access for non-recreational pursuits. Accordingly, motorized-vehicle access, routes of travel designations, and recreation are addressed as a single issue

Casual v. Authorized Access

Casual use of public lands in the context of motorized-vehicle access is defined as the use of routes not requiring a specific authorization. *Authorized use* in such context is the use of routes approved through a permitting process for specific activities (e.g., rights-of-way issued for development of communication sites). The designation of routes as "open," "limited," and "closed" is generally applicable to both casual and authorized users of public lands. However, where there is a requirement for occasional access associated with an authorized use but it is determined that unlimited casual use may cause undesirable resource impacts, routes will be designated "closed" and available for use only by the authorized party. In such circumstances, the authorized use of a "closed" route usually limits this use in some manner or requires mitigation in some form. It is anticipated that few routes will be available for use *only* by authorized parties. Access for the use and enjoyment of private lands will be addressed on a case-by-case basis where private landowners are adversely affected by route designation decisions.

BLM / USMC / NPS

Map 2-29 Appendix A shows the current access network for all lands in the NECO planning area. Plan decisions will not address access on USMC and NPS lands. Accordingly, the following actions apply to BLM-managed lands only.

Goals for Motorized-Vehicle Access / Routes of Travel Designations / Recreation

The goals stated in the CDCA Plan's Motorized-Vehicle Access Element (1985 Plan Amendment Six, approved January 15, 1987) are herein reiterated as goals of the NECO Plan for motorized-vehicle access and routes of travel designations:

a. Provide for constrained motorized vehicle access in a manner that balances the needs of all desert users, private landowners, and other public agencies.
b. When designating or amending areas or routes for motorized vehicle access, to the degree possible, avoid adverse impacts to desert resources.
c. Use maps, signs, and published information to communicate the motorized vehicle access situation to desert users. Be sure all information materials are understandable and easy to follow.

The goals stated in the CDCA Plan's Recreation Element (1985 Plan Amendment Six, approved

January 15, 1987; and 1987 Plan Amendment Nine, approved August 23, 1988) are herein reiterated as goals of the NECO Plan for recreation:

a. Provide for a wide range of quality recreation opportunities and experiences emphasizing dispersed undeveloped use.
b. Provide a minimum of recreation facilities. Those facilities should emphasize resource protection and visitor safety.
c. Manage recreation use to minimize user conflicts, provide a safe recreation environment, and protect desert resources.
d. Emphasize the use of public information and education techniques to increase public awareness, enjoyment, and sensitivity to desert resources.
e. Adjust management approach to accommodate changing visitor use patterns and preferences.
f. Encourage the use and enjoyment of desert recreation opportunities by special populations, and provide facilities to meet the needs of those groups.

Objectives[2]

a. Designate routes of travel consistent with the criteria at 43 CFR 8342.1.
b. Provide for organized competitive off-highway vehicle events in a manner that protects desert resources.
c. Establish consistency in expressing limitations for stopping, parking, and vehicle camping.

2.5.1 No Action Alternative

Objective a - Routes of Travel Designations[3]

CM Motorized-vehicle access is managed in accordance with Multiple-Use Class (MUC) guidelines established in the CDCA Plan, as amended (see section 3.10). Routes of travel are approved for motorized-vehicle use in accordance with Executive Orders 11644 and 11989 (issued on February 9, 1972, and May 24, 1977, respectively), and the criteria at 43 CFR 8342.1.

Action All "existing" routes (Map 2-29 Appendix A) in MUC "L" areas that have been inventoried and mapped for the NECO Plan,[4] including navigable washes that have been individually identified, are designated "open" for motorized-vehicle use except (1) where such use has already been limited or prohibited through publication of a final notice in the *Federal Register*, (2) where specific biological parameters proposed through the NECO Plan are applied to minimize harassment of wildlife and significant disruption of wildlife habitats relative to motorized-vehicle use,[5] or (3) where restrictions on use are required to protect other resource values of the public lands, to promote the safety of all users of the public lands, or to minimize conflicts among various uses of the public lands. All navigable washes not individually inventoried and mapped in MUC "L" areas would be designated "open" as a class except where such washes occur within a "washes closed zone" created to meet management goals in section 2.2. Designation of "washes open zones" in Category I and II would be approved contingent upon long-term monitoring of use and impacts. (Maps 2-10 and 2-31 Appendix A).

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[2] In response to a proposal to establish an Off-Highway Vehicle Recreation Area on public lands in the lower Chemehuevi Valley, the following objectives were initially considered for the NECO Plan: (1) amend area designations for motorized-vehicle access to meet the needs of desert users, enhance recreation opportunities, and protect desert resources; (2) amend Multiple-Use Class (MUC) designations to be consistent with amendments to area designations for motorized-vehicle access; and (3) designate Special Recreation Management Areas where site-specific management plans are necessary to address significant public recreation issues or management concerns. Consideration of the proposal to establish an OHV Recreation Area in the lower Chemehuevi Valley has been deferred until a coordinated effort between the Needles Field Office and the Lake Havasu Field Office (Arizona) to amend their respective land use plans can be initiated. Designation of a motorized-vehicle "open area" *only* within the CDCA at this time would be premature.

[3] (a) Route designations approved through the NECO Plan constitute CDCA Plan decisions; future changes to these decisions would required amending the CDCA Plan. (b) Route designations apply only to routes and portions thereof on public lands; the designation of routes as "open," "limited," and "closed" is not applicable on non-public lands. (c) Routes within Joshua Tree National Park are not subject to route designation through the NECO Plan; motorized-vehicle access is addressed through the Park's General Management Plan and amendments thereto. (d) The Chocolate Mountain Aerial Gunnery Range is closed to casual use; routes therein accordingly are not subject to the NECO Plan route designation process.

All navigable washes not individually inventoried and mapped in MUC "L" areas would be designated "open" *as a class* except where such washes occur within a "washes closed zone." All "existing" routes in MUC "M" areas and MUC "I" areas not designated "open" to motorized-vehicle access, whether non-wash routes or navigable washes, would be available for motorized-vehicle use except where such use has already been limited or prohibited, or where specific biological parameters proposed in sections 2.2 and 2.3 are applied to minimize harassment of wildlife and significant disruption of wildlife habitats relative to motorized-vehicle use. (Map 2-31 Appendix A)

Cultural Resources[6]
For all MUCs, routes identified as having cultural resources located within a 600-foot Area of Potential Effect (APE)[7] that are listed, determined eligible, or likely to be considered eligible for the National Register of Historic Places, and for which there is potential that activities associated with use of the route might adversely affect the resource, will remain undesignated until such time that the specific cultural resource can be assessed in the field and resource conflicts consequent to use of an adjacent route can be identified and resolved through review in accordance with Section 106 of the National Historic Preservation Act. If, after review, it is determined that use of the subject routes and activities associated with use of these routes will have no adverse effect

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[4] Appendix L describes the route inventory process for the NECO Plan.

[5] The criteria at 43 CFR 8342.1(b) require that harassment of wildlife or significant disruption of wildlife habitats be minimized where routes are available for use by motorized vehicles, that is, where routes are designated "open" or "limited." Further, the regulatory criteria require that special attention be given to protect endangered or threatened species and their habitats. The biological parameters proposed is sections 2.2 and 2.3 are applicable to all alternatives as necessary to meet regulatory requirements.

[6] The criteria at 43 CFR 8342.1(a) require that damage to soil, watershed, vegetation, air, or other resources of the public lands be minimized where routes are available for use by motorized vehicles. Such "other resources" include cultural resources.

[7] The size of the APE for the No Action Alternative—600 feet—relates to limits for stopping, parking, and vehicle camping under this alternative. Such activities are allowed within 300 feet of a route of travel (except in sensitive areas such as ACECs where the limit is 100 feet), thereby creating a zone approximately 600 feet wide for stopping, parking, and vehicle camping.

on historic properties, these routes may be designated "open."[8] If it is determined that use of a route or activities associated with use of the route may have or have had an adverse effect on historic properties, the BLM will consult with SHPO on the appropriate course of action to resolve the effect and may designate the route as "closed." Routes identified as having no known cultural resources located within the APE that are listed, determined eligible, or likely to be considered eligible, and routes where there are no identified cultural resources within the APE, may be designated "open."

REF See section 2.2 Issue: Recovery of the Desert Tortoise, and section 2.3 Issue: Management of Special Status Animals and Plants and Natural Communities regarding specific biological parameters to minimize harassment of wildlife and significant disruption of wildlife habitats. Table 2-11 (below) summarizes the referenced actions.

Table 2-11

Section	Biological Parameters to Minimize Harassment of Wildlife and Significant Disruption of Wildlife Habitats[9]
2.2	Portions of Desert Tortoise Recovery Units (No Action Alternative), portions of DWMAs (Preferred/Large DWMA Alternative), or DWMAs in their entirety (Small DWMA "A" and "B" Alternatives) are designated as "washes closed zones" wherein vehicle use is restricted to specific routes, including navigable washes, that are individually designated "open" or "limited"[10]
2.3	The route designation process shall consider fragment size
2.3	Closure of any route within 1/4 mile of any significant bat roost shall be strongly considered.[11]

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[8] Designation of routes subsequent to Section 106 review would require an amendment to the CDCA Plan.

[9] Recognizing the value of a motorized recreational touring network as identified through the NECO Plan and/or specific access requirements granted through the right-of-way process or other such authorizations, which generally are reflected by the presence of paved and/or maintained dirt roads, the following categories of routes are designated "open" as exceptions to the biological parameters described in this table, unless it is determined that use must be limited for other reasons: paved roads, maintained dirt roads, and recreational touring routes. In accordance with the CDCA Plan, as amended, a maintained road is defined as "regularly or frequently maintained by continuous use (e.g., passage of vehicles) or machine maintenance." For the NECO Plan, a maintained dirt road is generally one that is maintained periodically with the use of machines (e.g., motorized graders). A "recreational touring route" is one that, in combination with other such routes, provides important recreational access primarily to meet the needs of individuals who "drive for pleasure."

[10] Within "washes closed zones," washes not specifically designated "open" or "limited," despite their navigability, will not be available for vehicle use; such washes are designated "closed" *as a class*. Outside "washes closed zones," navigable washes are considered to occur within "washes open zones" and are available for motorized-vehicle use *as a class* unless it is determined that use in specific washes or wash zones must be further limited. In MUC "L" areas, navigable washes in "washes open zones" are designated "open" *as a class*. In MUC "M" areas and MUC "I" areas not designated "open" to motorized-vehicle access, navigable washes are considered "existing" routes (No Action Alternative only).

There are two different configurations of "washes closed zones" for the four alternatives. One configuration is applicable to the No Action Alternative and the Preferred/Large DWMA Alternative; the other is applicable to both of the small DWMA alternatives. The former occurs entirely within DWMAs as proposed under the Preferred/Large DWMA Alternative, but extends outside the Desert Tortoise Recovery Units to a small degree. The latter, as indicated, is coincident with the small DWMAs.

No "washes limited zones" are proposed in the NECO Plan.

[11] Applying "location-specific" biological parameters occasionally leads to the designation of an entire route as "closed" rather than limiting the closure to a portion of the route. Such broadening of the parameters in this manner is generally based on judgments regarding potential for manageability. Conversely, in light of judgments regarding maintenance of a viable

2.3	Closure of any route within 1/4 mile of prairie falcon and golden eagle eyries (cliff nests) shall be strongly considered.[12]
2.3	Closure of any route within 1/4 mile of a site of known occurrence of Couch's spadefoot toad shall be strongly considered.[13]
2.3	Closure of any route within 1/4 mile of a natural or artificial water source (e.g., springs, seeps, streams, guzzlers) shall be strongly considered.[14]
2.3	Closure of "redundant" routes shall be strongly considered.[15]

Route-Specific Designations (No Action Alternative)

Appendix I and Map 2-31 Appendix A identify the following:

- *routes proposed for "open" designation in MUC "L" areas*
- *routes proposed for "limited" designation*
- *"existing" routes available for use in MUC "M" and "I" areas*
- *routes proposed for "closed" designation*
- *routes proposed for addition to the route network to enhance recreational opportunities*

  Routes proposed for addition to the network typically fall into one of three categories:

  (1) *those which have never existed, thereby requiring "construction";*

    "Construction" may be accomplished with the use of typical road construction equipment, or simply by repeated vehicular travel along a specified course.

  (2) *specific navigable washes;*

    Although use of navigable washes in a "washes open zone" would be allowed *as a class*—no proposal would be necessary for their inclusion in the route network—wash-specific designations of "open" or "limited" in MUC "L" areas would allow their use to be encouraged, that is, such routes could be mapped and signed "open" if consistent with *"Implementation of Route Designation Decisions"* (below).

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route network and, again, potential for manageability, routes occurring within the prescribed distance as specified by the biological parameters are occasionally designated "open" or "limited."

[12] Same as footnote number 10.

[13] Same as footnote number 10.

[14] Same as footnote number 10.

[15] Redundant routes are those deemed *excess or more than are needed*. In identifying redundant routes, the following definition is to be considered: A redundant route is one whose purpose is apparently the same or very similar to that of another route, inclusive of providing the same or very similar recreation opportunities or experiences.

In some instances, elimination of redundant routes also reduces fragmentation of wildlife habitats.

Identifying redundant routes requires that judgements be made relative to the uses and purposes of certain routes. A route may be considered redundant based on proximity to another route despite a lack of knowledge about its use and purpose. Whether it is recommended for closure may then be dependent on its *apparent* use and purpose, its contribution to maintenance of a viable route network, its proximity to navigable washes in an "open" wash zone, and/or the potential for management of the route as "closed." (If navigable washes within an "open" wash zone are in close proximity to a route determined as redundant of another route identified in the NECO inventory, the closure of such route may be deemed inconsequential in attaining wildlife-related objectives because access to the immediate area would be minimally affected. Therefore, although redundant, it may not be recommended for closure.)

(3) *those which are declared to be "non-routes" at the time of the inventory.*

Reestablishing these routes may be accomplished with the use of typical road construction equipment, or simply by repeated vehicular travel.

Any route requiring construction through use of road construction equipment or establishment by repeated vehicular travel will require a specific authorization consequent to preparation of a project-specific environmental assessment.

- *routes declared to be "non-routes" at the time of the inventory (April 1996 and thereafter) and, therefore, not available for use*

  Non-routes are previously-existing routes which have been substantially reclaimed by the forces of nature. Some of these non-routes are delineated as existing routes on the most recent versions of 1:24,000 U.S.G.S. maps. Nevertheless, an on-the-ground survey revealed that such routes (1) cannot be located due to complete or near-complete reclamation, (2) are intermittently visible thereby encouraging intermittent cross-country travel where evidence of the route disappears, and/or (3) have been re-vegetated to the extent that, although visible, travel upon them would require the crushing of substantial vegetation, i.e., destruction of natural features.

  Where only a *portion* of a route was declared to be a non-route at the time of the inventory, the entire route is recommended for closure to preclude impacts to the non-route portion and allow natural reclamation to continue. Such routes are identified as "partial non-routes." Where a portion of the route connects other open routes and is not declared to be a non-route, only the non-route portion is recommended for closure.

  All "non-routes" and "partial non-routes" would be designated "closed."

- *routes for which designation decisions are deferred pending completion of a cultural resources assessment*

  Given the nature and scale of the NECO Plan, no field survey for cultural resources was conducted to specifically address the probability, nature and extent of effects to historic properties that might result from designating routes as "open" or "limited." Accordingly, routes within an Area of Potential Effect where the qualities or values of cultural resources that would qualify a site for inclusion on the National Register of Historic Places might be compromised consequent to use of the route or uses associated with the route (e.g., stopping, parking, and vehicle camping) will not be designated until a cultural resources assessment has been completed (also see discussion under section 4.1.12).

Table 2-12 No Action Alternative[16]

Miles of Vehicle Routes Designated "Open" in MUC "L" Areas[17]				
	Desert Tortoise Recovery Units		**Outside Desert Tortoise Critical Habitat**	**Total**
	Chemehuevi	**Chuckwalla**		
	453	352	960	1967
Miles of "Existing" Vehicle Routes Available for Use in MUC "M" and MUC "I" Areas[18]				
	373	569	1766	2708
Miles of Vehicle Routes Designated "Closed" to Minimize Harassment of Wildlife and Significant Disruption of Wildlife Habitats in Accordance with Biological Parameters				
Biological Parameter and NECO Section				
Portions of Desert Tortoise Recovery Units (No Action Alternative), portions of *DWMAs* (Preferred/Large DWMA Alternative), or DWMAs in their entirety (Small DWMA "A" and "B" Alternatives) are designated as "washes closed zones" wherein vehicle use is restricted to specific routes, including navigable washes, that are individually designated "open" or "limited" (Section 2.2)	Mileage of navigable washes closed *as a class* in "washes closed zones" is undetermined.			
Route designation shall consider fragment size (Section 2.3)	Fragmentation was considered in application of the other parameters, but no routes are proposed for closure due solely to this parameter.			
Closure of routes within 1/4 mile of significant bat roosts shall be strongly considered (Section 2.3)	1	-	15	16
Closure of routes within 1/4 mile of prairie falcon and golden eagle eyries shall be strongly considered (Section 2.3)	-	2	-	2
Closure of routes within 1/4 mile of known occurrences of Couch's spadefoot toad shall be strongly considered (Section 2.3)	-	-	-	-
Closure of routes within 1/4 mile of natural or artificial water sources shall be strongly considered (Section 2.3)	3	9	17	29
Closure of redundant routes shall be strongly considered (Section 2.3)	30	44	59	133
Total miles of closed routes from application of biological parameters	34	55	91	180

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[16] As previously indicated, route designations apply only to routes and portions thereof on public lands. To portray the actual extent of the access network, however, it is necessary to consider routes on both public and non-public lands. Therefore, mileages of routes cited in this table pertain to lengths of routes in their entirety regardless of land ownership.

[17] These figures do not reflect the miles of wash routes designated "open" *as a class* in "washes open zones." Routes designated "limited" (seasonal limitations on use) total nine (9) miles, but are included in this table as "open" routes.

[18] These figures do not reflect the miles of wash routes available for use as "existing" routes of travel in "washes open zones."

Miles of Vehicle Routes Designated "Closed" to Protect Other Resource Values of the Public Lands, to Promote the Safety of All Users of the Public Lands, or to Minimize Conflicts Among Various Uses of the Public Lands[19]				
	-	2	41	43
Miles of Vehicle Routes Proposed for Addition to the Route Network to Enhance Recreational Opportunities[20]				
	84	20	215	319
Miles of "Non-routes" Identified During the Route Inventory				
	25	6	38	69
Miles of "Partial Non-routes" Identified During the Route Inventory				
	25	6	38	69
Miles of Vehicle Routes in Designated Wilderness Closed to Casual Motorized-Vehicle Access through the California Desert Protection Act of 1994[21]				
	637			
Miles of Vehicle Routes for which Designation is Deferred Pending Completion of a Cultural Resources Assessment				
	4	7	34	45

Implementation of Route Designation Decisions

a. Routes comprising a basic recreational access network within the NECO planning area would be individually signed in such a way as to signify their availability for use. This basic network is based on specific recreational touring routes identified for the NECO Plan.

b. Information kiosks depicting the basic recreational access network would be installed at key locations throughout the NECO planning area. These kiosks would furnish information relating to access opportunities and limitations, resource protection, and visitor safety.

c. Printed media (e.g., maps, brochures, etc.) depicting the basic recreational access network would be developed and distributed to the public. Information provided would be similar to that on the kiosks, but would likely be more comprehensive as space allows. Interpretive information may also be provided to enhance recreational experiences.

d. Routes designated "closed" would be appropriately signed, barricaded, or rehabilitated as necessary to exclude access and allow the forces of nature to obliterate them, except where limited use is important to achieve resource management objectives (e.g., maintenance of small game guzzlers to support wildlife populations). In such cases, access would be controlled to exclude casual use by the general public yet allow continued administrative use.

e. Routes that are not included in the basic recreational access network but are available for motorized-vehicle use (i.e., they have not been designated "closed") would *not* be signed or depicted on information kiosks.

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[19] Mileages reflect application of the route designation criteria at 43 CFR 8342.1 other than those at 43 CFR 8342.1(b) (see footnote 4 of this section).

[20] Any route requiring construction through use of road construction equipment or establishment by repeated vehicle travel will require a specific authorization consequent to preparation of a project-specific environmental assessment.

[21] The actual mileage of routes in wilderness that were closed to casual motorized-vehicle use consequent to the California Desert Protection Act of 1994 is undetermined as a complete inventory of routes does not exist for these areas.

The intent of this strategy is (1) to provide off-highway vehicle enthusiasts, especially novices, with well-defined, signed routes on which to explore the desert, and (2) to direct use to a limited number of primary routes, thereby decreasing use throughout the network of secondary routes. In general, it is anticipated that the identified primary routes will better accommodate higher levels of use with lower potential for adverse impacts to resource values than the secondary routes.

Implementation Priorities:

> Implementation would occur first within MUC "L" areas and ACECs, then on the remaining public lands.

Route-Specific NEPA Documentation

Documentation of proposed decisions is generally displayed on the large format maps in the back-cover pouch. Documentation on a route by route basis (inventory route number) by alternative is not included in the DEIS but is available upon request. Route by route basis documentation will be included in the FEIS and Record of Decision at the conclusion of the planning process. The routes inventory is available on detailed maps (1:24,000 scale) for review at the following BLM offices: Needles, Palm Springs, El Centro, and Riverside.

Route Designation Revisions

Routes of travel designations would be revised in accordance with the CDCA Plan, as amended (see section 3.10).

Objective b - Competitive Off-Highway Vehicle Events

CM Competitive off-highway vehicle events are allowed on competitive recreation routes[22] established through the CDCA Plan, as amended. Within the NECO Planning Area, these are the *Johnson Valley to Parker* and the *Parker 400* routes (Map 2-30 Appendix A). These routes are established and approved exclusively for permitted competitive recreation use, and are not for access or casual recreation unless specifically approved for such use.

Prior to authorizing a competitive off-highway vehicle event within a designated competitive recreation route, an event-specific environmental assessment (EA) shall be completed. It can be assumed the BLM will issue permits *absent a charge in the circumstances which led to the establishment of these corridors*. The purpose of the EA is to determine if changes have occurred. The BLM may deny a permit for a race in a designated corridor if there is reason to believe that changes have, in fact, occurred and a competitive off-highway vehicle event would result in substantial impacts to resource values that cannot be avoided or mitigated.

Permits issued for the use of these corridors will include stipulations consistent with the Multiple-Use Class guidelines for the areas through which they pass. All competitive events will require appropriate resource, safety, and management stipulations. Stipulations for the *Johnson Valley to Parker Motorcycle Race* will include those developed specifically for the event through the 1980 Environmental Impact Statement (see Appendix K).

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[22] The CDCA Plan identifies competitive recreation courses as "routes." Actions proposed in the NECO Plan require distinguishing between an existing route on which casual motorized vehicle travel occurs and which establishes the basic alignment of the competitive recreation route, and a "corridor" that is comprised of the existing route and adjacent lands available for racing. Also see footnote 23 of this section.

Competitive off-highway vehicle events *outside* the established competitive recreation routes are allowed in accordance with the Multiple-Use Class guidelines for the areas through which they pass (see section 3.9 for guidelines). Prior to authorizing a competitive off-highway vehicle event outside a designated competitive recreation route, an event-specific environmental assessment or environmental impact statement will be completed.

Objective c - Stopping, Parking, and Vehicle Camping

CM In accordance with the CDCA Plan, as amended, stopping, parking, and vehicle camping are allowed within300 feet of a route except within sensitive areas (such as ACECs) where the limit is 100 feet.[23]

2.5.2 Preferred/Large DWMA Alternative

Objective a - Routes of Travel Designations

Action Amend the CDCA Plan to require that motorized-vehicle access will be managed in accordance with current MUC "L" guidelines irrespective of Multiple-Use Class, except in MUC "C" (wilderness) and areas designated "open" for vehicle use.

Action All "existing" routes that have been inventoried and mapped for the NECO Plan (Map 2-29 Appendix A), including navigable washes that have been individually identified, would be designated "open" for motorized-vehicle use except (1) where such use has already been limited or prohibited through publication of a final notice in the *Federal Register*, (2) where specific biological parameters proposed through the NECO Plan are applied to minimize harassment of wildlife and significant disruption of wildlife habitats relative to motorized-vehicle use, or (3) where restrictions on use are required to protect other resource values of the public lands, to promote the safety of all users of the public lands, or to minimize conflicts among various uses of the public lands. All navigable washes not individually inventoried and mapped would be designated "open" *as a class* except where such washes occur within a "washes closed zone"[24] created to meet management goals in section 2.2. Designation of "washes open zones" in DWMAs would be approved contingent upon long-term monitoring of use and impacts. (Maps 2-10 and 2-32 Appendix A)

Cultural Resources

Actions to protect cultural resource values would be the same as described under the No Action

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[23] The 1982 CDCA Plan Amendments Three and Forty-Nine, approved May 17, 1983, lend themselves to confusion regarding limitations on stopping, parking, and vehicle camping. Amendment Three, which revised the Motorized-Vehicle Access Element, specifies that stopping, parking, and vehicle camping are allowed within 300 feet of routes, and that specific parking or stopping areas may be signed "open" or "closed" to protect fragile or sensitive resources adjacent to the route. Accordingly, these activities would not be further limited until such time that it is determined to be necessary. On the other hand, Amendment Forty-Nine establishes the 300-foot limit "except within sensitive areas (such as ACECs)." Determinations of where these activities need to be further limited were not deferred to a later date in the case of ACECs and other recognized sensitive areas (although prohibiting parking and stopping in specific areas to protect fragile or sensitive resources, regardless of location, remains discretionary with the BLM). As the CDCA Plan in 1980 established a 100-foot limitation and Amendment Forty-Nine changes it to 300 feet *except* in sensitive areas, the 100-foot limitation still applies in ACECs.

[24] The configuration of the "washes closed zone" under this alternative is the same as for the No Action Alternative.

Alternative except the size of the APE is changed to 200 feet within DWMAs.[25]

REF See section 2.2 Issue: Recovery of the Desert Tortoise, and section 2.3 Issue: Management of Special Status Animals and Plants and Natural Communities regarding specific biological parameters to minimize harassment of wildlife and significant disruption of wildlife habitats relative to motorized-vehicle use: same as the No Action Alternative.

***Route-Specific Designations** (Preferred/Large DWMA Alternative)*

Appendix I and Map 2-32 Appendix A identify the following:

- *routes proposed for "open" designation*
- *routes proposed for "limited" designation*
- *routes proposed for "closed" designation*
- *routes proposed for addition to the route network to enhance recreational opportunities*
  (See discussion under the No Action Alternative relative to this element.)
- *routes declared to be "non-routes" at the time of the inventory (April 1996 and thereafter) and, therefore, not available for use*
  (See discussion under the No Action Alternative relative to this element.)
- *routes for which designation decisions are deferred pending completion of a cultural resources assessment*
  (See discussion under the No Action Alternative relative to this element.)

Table 2-13 Preferred/Large DWMA Alternative (footnotes for Table 2-10 are applicable to this table)

<table>
<tr><th colspan="6">Miles of Vehicle Routes Designated "Open"</th></tr>
<tr><th rowspan="3"></th><th colspan="2">DWMAs</th><th rowspan="2">WHMAs</th><th rowspan="2">Outside DWMAs and WHMAs</th><th rowspan="2">Total</th></tr>
<tr><th>Chemehuevi</th><th>Chuckwalla</th></tr>
<tr><td>799</td><td>1006</td><td>1352</td><td>2016</td><td>5173</td></tr>
<tr><th colspan="6">Miles of Vehicle Routes Designated "Closed" to Minimize Harassment of Wildlife and Significant Disruption of Wildlife Habitats in Accordance with Biological Parameters</th></tr>
<tr><th>Biological Parameter and NECO Section</th><td colspan="5" rowspan="2">Mileage of navigable washes closed <i>as a class</i> in "washes closed zones" is undetermined.</td></tr>
<tr><td>Portions of Desert Tortoise Recovery Units (No Action Alternative), portions of DWMAs (Preferred/Large DWMA Alternative), or DWMAs in their entirety (Small DWMA "A" and "B" Alternatives) are designated as "washes closed zones" wherein vehicle use is restricted to specific routes, including navigable washes, that are individually designated "open" or "limited" (Section 2.2)</td></tr>
<tr><td>Route designation shall consider fragment size (Section 2.3)</td><td colspan="5">Fragmentation was considered in application of the other parameters, but no routes are proposed for closure due solely to this parameter.</td></tr>
</table>

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[25] The size of the APE within DWMAs for the Preferred/Large DWMA Alternative—200 feet—relates to limits for stopping, parking, and vehicle camping under this alternative. Such activities are allowed within 100 feet of centerline of a route of travel within DWMAs, thereby creating a zone 200 feet wide for stopping, parking, and vehicle camping. Outside DWMAs, the limit for such activities is 300 feet from a route's centerline, thereby establishing an APE of 600 feet (except in sensitive areas such as ACECs where the limit for stopping, parking, and vehicle camping is 100 feet).

Closure of routes within 1/4 mile of significant bat roosts shall be strongly considered (Section 2.3)	-	-	11	3	14
Closure of routes within 1/4 mile of prairie falcon and golden eagle eyries shall be strongly considered (Section 2.3)	-	2	-	-	2
Closure of routes within 1/4 mile of known occurrences of Couch's spadefoot toad shall be strongly considered (Section 2.3)	-	-	-	-	0
Closure of routes within 1/4 mile of natural or artificial water sources shall be strongly considered (Section 2.3)	3	9	13	3	28
Closure of redundant routes shall be strongly considered (Section 2.3)	26	42	54	11	133
Total miles of closed routes from application of biological parameters	29	53	80	17	177
Miles of Vehicle Routes Designated "Closed" to Protect Other Resource Values of the Public Lands, to Promote the Safety of All Users of the Public Lands, or to Minimize Conflicts Among Various Uses of the Public Lands					
	-	2	2	39	43
Miles of Vehicle Routes Proposed for Addition to the Route Network to Enhance Recreational Opportunities					
	3	7	-	-	10
Miles of "Non-routes" Identified During the Route Inventory					
	70	18	129	104	321
Miles of "Partial Non-routes" Identified During the Route Inventory					
	18	6	19	25	68
Miles of Vehicle Routes in Designated Wilderness Closed to Casual Motorized-Vehicle Access through the California Desert Protection Act of 1994					
	Same as the No Action Alternative (669 miles)				
Miles of Vehicle Routes for which Designation is Deferred Pending Completion of a Cultural Resources Assessment					
	2	1	22	15	40

Implementation of Route Designation Decisions

Same as the No Action Alternative except for implementation priorities.

Implementation priorities:

Implementation will occur first within DWMAs, followed by WHMAs, then on the remaining public lands.

Route-Specific NEPA Documentation

Same as the No Action Alternative.

Route Designation Revisions
Same as the No Action Alternative.

Objective b - Competitive Off-Highway Vehicle Events

Action The section entitled "Organized Competitive Vehicle Events" in the Recreation Element of the CDCA Plan would be amended as follows:

1. The *Parker 400* competitive recreation route (corridor) would be eliminated.
2. Competitive events in the *Johnson Valley to Parker* route would be permitted in accordance with requirements set forth in the CDCA Plan (see Section 3.9) and stipulations from the 1980 Environmental Impact Statement (see Appendix K) except for the following changes and additional requirements (some elements listed below provide clarification of existing requirements):
   a. The *Johnson Valley to Parker* route is available for casual recreation use except on days when competitive events are conducted.
   b. The *Johnson Valley to Parker* route will be designated "open" except where cross-country travel within the *Johnson Valley to Parker* corridor is permitted.[26]
   c. The maximum number of participants in any one event is 500.
   d. The maximum number of participants in any one event is 500.
   e. Participation is limited to motorcycles and all-terrain vehicles (ATVs).
   f. The start area must be located sufficiently within and distant from the boundary of the Johnson Valley Off-Highway Vehicle Recreation Area to allow the field of participants to narrow (given the differing speeds of the various contestants) such that the event could continue within the confines of the established race corridor outside the "open area."[27]
   g. The maximum width of the race corridor outside the Johnson Valley Off-Highway Vehicle Recreation Area is 200 feet.[28]
   h. Where the *Johnson Valley to Parker* route establishes the boundary of a DWMA or WHMA, or the boundary of a wilderness area is less than 100 feet from the centerline of the designated route, the race corridor shall not extend beyond the route's edge on that side, nor shall it extend farther than 100 feet from the centerline of the route opposite these special areas. Identification of other sensitive areas (e.g., those containing significant cultural resources) may locally restrict corridor width to protect resource values.
   i. Pits shall be limited to locations identified in the NECO Plan. All pit activities, including parking of service vehicles, are restricted to the designated pit areas. Only race participants, support crews, and race officials are allowed in pit areas; spectators are prohibited in the pits.

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[26] The maximum number of participants in any one event is 500. Cross-country portions of the *Johnson Valley to Parker* route—sections where no established route exists—will not be available to the casual user. Only race participants and race officials may use cross-country portions of the race route when a competitive event is approved; race officials may also use these portions of the route for purposes related to administration of the event. The *Johnson Valley to Parker* route designated "open" refers to the established route available for casual use; lands adjacent to the established route and within the race corridor are not available for casual use except for the purposes of stopping, parking, and vehicle camping unless such uses are otherwise restricted.

[27] Depending on the number of participants, two or more starting waves may be necessary to meet this requirement.

[28] Where an existing route establishes the alignment of the race corridor, the boundaries of the corridor shall be no more than 100 feet from the centerline of the route.

j. Participants may officially finish at any pit area.
k. Access by race officials for delineating the route, monitoring events, and conducting post-event actions is limited to the established corridor and other routes of travel normally available to the casual user.

3. Prior to authorizing a competitive off-highway vehicle event in the *Johnson Valley to Parker* corridor, an event-specific environmental assessment would be completed. It can be assumed the BLM will issue a permit *absent a charge in the circumstances which led to establishment of the corridor*. The purpose of the EA is to determine if changes have occurred. The BLM may deny a permit for a race in the corridor if there is reason to believe that changes have, in fact, occurred and a competitive off-highway vehicle event would result in substantial impacts to resource values that cannot be avoided or mitigated.
4. Competitive motorized-vehicle events in which speed is the primary competitive factor would be prohibited except on approved competitive recreation routes (e.g., *Johnson Valley to Parker* route) and within Off-Highway Vehicle Recreation Areas.

Objective c - Stopping, Parking, and Vehicle Camping

Action The section entitled "Stopping and Parking" in the Motorized-Vehicle Access element of the CDCA Plan, as amended, would be modified such that stopping, parking, and vehicle camping are allowed within 300 feet from the *centerline* of an approved route except within sensitive areas (such as ACECs) where the limit is 100 feet.[29] This slight modification of current management would provide consistency as regards the width of the stopping, parking, and vehicle camping corridor along approved routes of travel.

REF See section 2.2 Issue: Recovery of the Desert Tortoise. In accordance with the Preferred/Large DWMA Alternative, it is proposed that stopping, parking, and vehicle camping be allowed no more than 100 feet from the *centerline* of a route within DWMAs.

2.5.3 SMALL DWMA A Alternative

Objective a - Routes of Travel Designations

Action Same as the Preferred/Large DWMA Alternative except that vehicle routes designated "open" within DWMAs are limited to (1) paved routes, (2) maintained dirt routes, and (3) recreational touring routes identified for the NECO Plan. (Map 2-33 Appendix A)

Cultural Resources

Actions to protect cultural resource values would be the same as described under the No Action Alternative except the size of the APE is changed to 60 feet within DWMAs.[30]

REF See section 2.2 Issue: Recovery of the Desert Tortoise, and section 2.3 Issue: Management of Special Status Animals and Plants and Natural Communities regarding specific biological parameters to minimize harassment of wildlife and significant disruption of wildlife habitats relative to motorized-vehicle use: same as the Preferred/Large DWMA Alternative except that DWMAs in their entirety would be designated as "washes closed zones" wherein vehicle use is restricted to specific routes, including navigable washes, that are individually designated "open" or "limited."[11]

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[29] Under this alternative, the "300-foot rule" would be applicable outside DWMAs only.

[30] The size of the APE within DWMAs for the Small DWMA "A" Alternative—60 feet—relates to limits for stopping, parking, and vehicle camping under this alternative. Such activities are allowed within 30 feet of centerline of a route of travel within DWMAs, thereby creating a zone 60 feet wide for stopping, parking, and vehicle camping. Outside DWMAs, the limit for such activities is 300 feet from a route's centerline, thereby establishing an APE of 600 feet (except in sensitive areas such as ACECs where the limit for stopping, parking, and vehicle camping is 100 feet).

***Route-Specific Designations** (Small DWMA "A" Alternative)*

Appendix I and Map 2-33 Appendix A identify the following:

- *routes proposed for "open" designation*
- *routes proposed for "limited" designation*
- *routes proposed for "closed" designation*
- *routes proposed for addition to the route network to enhance recreational opportunities*
  (See discussion under the No Action Alternative relative to this element.)
- *routes declared to be "non-routes" at the time of the inventory (April 1996 and thereafter) and, therefore, not available for use*
  (See discussion under the No Action Alternative relative to this element.)
- *routes for which designation decisions are deferred pending completion of a cultural resources assessment*
  (See discussion under the No Action Alternative relative to this element.)

Table 2-14 Small DWMA A Alternative (footnotes for Table 2-10 are applicable to this table)

<table>
<tr><th colspan="6">Miles of Vehicle Routes Designated "Open"</th></tr>
<tr><th rowspan="2"></th><th colspan="2">DWMAs</th><th rowspan="2">WHMAs</th><th rowspan="2">Outside DWMAs and WHMAs</th><th rowspan="2">Total</th></tr>
<tr><th>Chemehuevi</th><th>Chuckwalla</th></tr>
<tr><td></td><td>430</td><td>328</td><td>1826</td><td>1997</td><td>4581</td></tr>
<tr><th colspan="6">Miles of Vehicle Routes Designated "Closed" to Minimize Harassment of Wildlife and Significant Disruption of Wildlife Habitats in Accordance with Biological Parameters</th></tr>
<tr><th>Biological Parameter and NECO Section</th><td colspan="5" rowspan="2">Mileage of navigable washes closed <i>as a class</i> in "washes closed zones" is undetermined.</td></tr>
<tr><td>Portions of Desert Tortoise Recovery Units (No Action Alternative), portions of DWMAs (Preferred/Large DWMA Alternative), or DWMAs in their entirety (Small DWMA "A" and "B" Alternatives) are designated as "washes closed zones" wherein vehicle use is restricted to specific routes, including navigable washes, that are individually designated "open" or "limited" (Section 2.2)</td></tr>
<tr><td>Route designation shall consider fragment size (Section 2.3)</td><td colspan="5">Fragmentation was considered in application of the other parameters, but no routes are proposed for closure due solely to this parameter.</td></tr>
</table>

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[11] The configuration of DWMAs differs between the Preferred/Large DWMA Alternative and the Small DWMA "A" and "B" Alternatives. Whereas DWMAs in their entirety under the Small DWMA "A" and "B" Alternatives would constitute "washes closed zones," only portions of DWMAs under the Preferred/Large DWMA Alternative would be similarly designated.

Closure of routes within 1/4 mile of significant bat roosts shall be strongly considered (Section 2.3)	-	-	11	3	14
Closure of routes within 1/4 mile of prairie falcon and golden eagle eyries shall be strongly considered (Section 2.3)	-	1	-	-	1
Closure of routes within 1/4 mile of known occurrences of Couch's spadefoot toad shall be strongly considered (Section 2.3)	-	-	-	-	0
Closure of routes within 1/4 mile of natural or artificial water sources shall be strongly considered (Section 2.3)	-	7	18	3	28
Closure of redundant routes shall be strongly considered (Section 2.3)	18	23	81	11	133
Total miles of closed routes from application of biological parameters	18	31	110	17	176
Miles of Vehicle Routes Designated "Closed" to Protect Other Resource Values of the Public Lands, to Promote the Safety of All Users of the Public Lands, or to Minimize Conflicts Among Various Uses of the Public Lands					
	-	1	2	39	42
Additional Miles of Vehicle Routes Designated "Closed" in Accordance with the Proposed Action under this Alternative[12]					
	271	324			
Miles of Vehicle Routes Proposed for Addition to the Route Network to Enhance Recreational Opportunities					
	3	2	3	2	10
Miles of "Non-routes" Identified During the Route Inventory					
	61	17	139	104	321
Miles of "Partial Non-routes" Identified During the Route Inventory					
	16	6	21	25	68
Miles of Vehicle Routes in Designated Wilderness Closed to Casual Motorized-Vehicle Access through the California Desert Protection Act of 1994					
	Same as the No Action Alternative (669 miles)				
Miles of Vehicle Routes for which Designation is Deferred Pending Completion of a Cultural Resources Assessment					
	n/a	n/a	25	15	40

Implementation of Route Designation Decisions
Same as the Preferred/Large DWMA Alternative.

Route-Specific NEPA Documentation
Same as the No Action Alternative.

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[12] The mileages shown here represent the proposed closure of unmaintained dirt routes in DWMAs that would not be designated "closed" under the Preferred/Large DWMA Alternative.

Route Designation Revisions
Same as the No Action Alternative.

Objective b - Competitive Off-Highway Vehicle Events

Action The section entitled "Organized Competitive Vehicle Events" in the Recreation Element of the CDCA Plan would be amended as follows:

a. The *Johnson Valley to Parker* and *Parker 400* competitive recreation routes (corridors) would be eliminated.
b. Competitive off-highway-vehicle events in which speed is the primary competitive factor would be restricted to Off-Highway Vehicle Recreation Areas. Events in these "open areas" would be in accordance with MUC "I" guidelines and event-specific requirements as formulated by the authorized officer.

Objective c - Stopping, Parking, and Vehicle Camping

Action Same as the Preferred/Large DWMA Alternative.

REF See section 2.2 Issue: Recovery of the Desert Tortoise. In accordance with the Small DWMA "A" Alternative, it is proposed that stopping and parking be limited to an area no more than 30 feet from *centerline* of an approved route within DWMAs. Vehicle camping would only be allowed in designated areas within DWMAs.

2.5.4 SMALL DWMA B Alternative

Objective a - Routes of Travel Designations

Action Same as the Small DWMA A Alternative except that redundant routes outside DWMAs would be designated "open." (Map 2-34 Appendix A)

Cultural Resources
Actions to protect cultural resource values would be the same as described under the No Action Alternative.[33]

REF See section 2.2 Issue: Recovery of the Desert Tortoise, and section 2.3 Issue: Management of Special Status Animals and Plants and Natural Communities regarding specific biological parameters to minimize harassment of wildlife and significant disruption of wildlife habitats relative to motorized-vehicle use: same as the Small DWMA "A" Alternative.

***Route-Specific Designations** (Small DWMA "B" Alternative)*
Appendix I and Map 2-34 Appendix A identify the following:

- *routes proposed for "open" designation*
- *routes proposed for "limited" designation*
- *routes proposed for "closed" designation*

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[33] The size of the APE within DWMAs for the Small DWMA "B" Alternative—600 feet—relates to limits for stopping, parking, and vehicle camping under this alternative. Such activities are allowed within 300 feet of centerline of a route of travel within DWMAs, thereby creating a zone 600 feet wide for stopping, parking, and vehicle camping. Outside DWMAs, the limit for such activities is also 300 feet from a route's centerline, thereby establishing an APE of 600 feet (except in sensitive areas such as ACECs where the limit for stopping, parking, and vehicle camping is 100 feet).

- *routes proposed for addition to the route network to enhance recreational opportunities*
  (See discussion under the No Action Alternative relative to this element.)
- *routes declared to be "non-routes" at the time of the inventory (April 1996 and thereafter) and, therefore, not available for use*
  (See discussion under the No Action Alternative relative to this element.)
- *routes for which designation decisions are deferred pending completion of a cultural resources assessment*
  (See discussion under the No Action Alternative relative to this element.)

Table 2-15 Small DWMA "B" Alternative (footnotes for Table 2-10 are applicable to this table)

Miles of Vehicle Routes Designated "Open"					
	DWMAs		**WHMAs**	**Outside DWMAs and WHMAs**	**Total**
	Chemehuevi	**Chuckwalla**			
	Same as the Small DWMA "A" Alternative		1637	2315	4660
Miles of Vehicle Routes Designated "Closed" to Minimize Harassment of Wildlife and Significant Disruption of Wildlife Habitats in Accordance with Biological Parameters					
Biological Parameter and NECO Section					
Portions of Desert Tortoise Recovery Units (No Action Alternative), portions of DWMAs (Preferred Large DWMA Alternative), or DWMAs in their entirety (Small DWMA "A" and "B" Alternatives) are designated as "washes closed zones" wherein vehicle use is restricted to specific routes, including navigable washes, that are individually designated "open" or "limited" (Section 2.2)	Mileage of navigable washes closed *as a class* in "washes closed zones" is undetermined.				
Route designation shall consider fragment size (Section 2.3)	Fragmentation was considered in application of the other parameters, but no routes are proposed for closure due solely to this parameter.				
Closure of routes within 1/4 mile of significant bat roosts shall be strongly considered (Section 2.3)	Same as the Small DWMA "A" Alternative		11	3	14
Closure of routes within 1/4 mile of prairie falcon and golden eagle eyries shall be strongly considered (Section 2.3)	Same as the Small DWMA "A" Alternative		-	-	1
Closure of routes within 1/4 mile of known occurrences of Couch's spadefoot toad shall be strongly considered (Section 2.3)	Same as the Small DWMA "A" Alternative		-	-	0
Closure of routes within 1/4 mile of natural or artificial water sources shall be strongly considered (Section 2.3)	Same as the Small DWMA "A" Alternative		18	4	29
Closure of redundant routes shall be strongly considered (Section 2.3)	Same as the Small DWMA "A" Alternative		n/a	n/a	n/a

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Total miles of closed routes from application of biological parameters	Same as the Small DWMA "A" Alternative	29	7	44
Miles of Vehicle Routes Designated "Closed" to Protect Other Resource Values of the Public Lands, to Promote the Safety of All Users of the Public Lands, or to Minimize Conflicts Among Various Uses of the Public Lands				
	Same as the Small DWMA "A" Alternative	1	40	42
Additional Miles of Vehicle Routes Designated "Closed" in Accordance with the Proposed Action under this Alternative[14]				
	Same as the Small DWMA "A" Alternative			
Miles of Redundant Routes Outside DWMAs Designated "Open" in Accordance with the Proposed Action under this Alternative[15]				
		59	33	92
Miles of Vehicle Routes Proposed for Addition to the Route Network to Enhance Recreational Opportunities				
	Same as the Small DWMA "A" Alternative	3	2	10
Miles of "Non-routes" Identified During the Route Inventory				
	Same as the Small DWMA "A" Alternative	107	135	320
Miles of "Partial Non-routes" Identified During the Route Inventory				
	Same as the Small DWMA "A" Alternative	13	33	68
Miles of Vehicle Routes in Designated Wilderness Closed to Casual Motorized-Vehicle Access through the California Desert Protection Act of 1994				
	Same as the No Action Alternative (669 miles)			
Miles of Vehicle Routes for which Designation is Deferred Pending Completion of a Cultural Resources Assessment				
	Same as the Small DWMA "A" Alternative	5	35	40

Implementation of Route Designation Decisions
Same as the Preferred/Large DWMA Alternative.

Route-Specific NEPA Documentation
Same as the No Action Alternative.

Route Designation Revisions
Same as the No Action Alternative.

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[14] As with the Small DWMA "A" Alternative, the additional miles of vehicle routes designated "closed" are relative to the Preferred/Large DWMA Alternative.

[15] The mileage of redundant routes are *included* in the mileage of vehicle routes designated "open" as shown under the first heading of this table.

Objective b - Competitive Off-Highway Vehicle Events

Action The section entitled "Organized Competitive Vehicle Events" in the Recreation Element of the CDCA Plan would be amended as follows:

1. The *Parker 400* competitive recreation route (corridor) would be eliminated.
2. Competitive motorized-vehicle events in the *Johnson Valley to Parker* corridor would be managed consistent with the requirements described for the Preferred/Large DWMA Alternative except the maximum number of participants is 800.
3. The following *additional* criteria for competitive motorized-vehicle events in which speed is the primary competitive factor would be included except for such events occurring entirely within off-Highway Vehicle Recreation Areas:
    a. Competitive motorized-vehicle events may occur only on routes designated "open" for casual use; routes designated "limited" or "closed" may not be used for such events.
    b. The maximum number of participants in any one event is 800.
    c. Participation is limited to motorcycles and ATVs.
    d. Start areas shall be located within Off-Highway Vehicle Recreation Areas. The start area must be located sufficiently within and distant from the boundary of the Off-Highway Vehicle Recreation Area to allow the field of participants to narrow (given the differing speeds of the various contestants) such that the event could continue within the confines of the established race corridor outside the "open area."
    e. The maximum width of the race corridor is 200 feet.[36]
    f. Competitive motorized-vehicle events are not allowed in wilderness areas, WSAs, ACECs, critical habitat designated by the USFWS, identified cultural resource sites or districts, riparian areas, and other sensitive areas. Course design shall not include trails and roads that (a) are on or eligible for the National Register of Historic Places, (b) are designated as National Historic Trails or eligible for such designation, or (c) have been otherwise specially designated.
    g. Where the "open" route utilized for a competitive event establishes the boundary of a DWMA or WHMA, or the boundary of a wilderness area is less than 100 feet from the centerline of the route, the race corridor shall not extend beyond the route's edge on that side, nor shall it extend farther than 100 feet from the centerline of the route opposite these special areas.
    h. Pits shall be limited to suitable sites in MUC "M" and "I" areas. All pit activities, including parking of service vehicles, are restricted to the designated pit areas. Only race participants, support crews, and race officials are allowed in pit areas; spectators are prohibited in the pits.
    i. Finish and spectator areas shall be limited to suitable sites in MUC "M" or "I" areas.
    j. Access by race officials for delineating the route, monitoring events, and conducting post-event actions is limited to the established corridor and other routes of travel normally available to the casual user.
    k. Written permission from landowners to cross private property shall be provided to the BLM.
    l. Permits issued for competitive motorized-vehicle events shall include appropriate resource, safety, and management stipulations.

Prior to authorizing a competitive off-highway vehicle outside an approved competitive recreation route or Off-Highway Vehicle Recreation Area, an event-specific environmental assessment would be completed.

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[36] Where an "open" route establishes the alignment of the race corridor, the boundaries of the corridor shall be no more than 100 feet from the centerline of the route.

Objective c - Stopping, Parking, and Vehicle Camping

Action Same as the Preferred/Large DWMA Alternative.

REF See section 2.2 Issue: Recovery of the Desert Tortoise. In accordance with the Small DWMA "B" Alternative, it is proposed that stopping, parking, and vehicle camping be allowed within 300 feet from *centerline* of an approved route within DWMAs.

2.6 Issue: Land Ownership Pattern

Eighty-one percent of the land within the Planning Area is in Federal (public) ownership (Map 1-3 Appendix A). The remainder is divided among primarily state land grants, railroad lands, private inholdings, and other properties. While the amount of Federal land is high and generally supports a "Federal solution" to managing species and habitats, there are zones of mixed or "checkerboard" ownership outside of JTNP and CMAGR where federal management and private agendas are difficult to pursue. Without an adjustment to the land ownership pattern BLM will continue to be at a disadvantage concerning the management of sensitive resources adjacent to private or State owned property. This section applied primarily to BLM management. Currently there is little development pressure on private lands within the Planning Area.

Goal for Land Ownership Pattern

Adjust the land ownership pattern through acquisition and disposal of selected lands to improve opportunities for both the management areas and conservation of natural resources within DWMAs and WHMAs and existing wilderness, and the use of public and private lands in areas of low natural resource values for private, commercial or social purposes, including th opportunity for community expansion. Acquisition of Catellus and SLC lands (as well as other private lands) in wilderness areas is a continuing independent process requiring no specific action through the NECO planning process.

All acquired lands will automatically be managed under the same criteria as the surrounding public lands.

Public ownership within DWMAs and WHMAs shall be retained according to the guidelines of multiple use classes, ACECs, wilderness areas and other federal requirements unless there is a compelling reason for disposal as determined through NEPA and land use plan amendments. Where decision may be made to dispose of federal lands, the following considerations will contribute to developing a pattern of use and conservation to protect special status species, and the habitats and ecological processes they depend upon:

- location of springs and artificial waters
- known/predicted occurrence of special status plants and wildlife species
- corridors for movement of bighorn sheep and other species
- flow of water and movement of sand and soil and other ecological processes.

Federal lands available for private acquisition (disposal) come from the remainder of lands outside CMAGR, JTNP, BLM wilderness, DWMAs and WHMAs. The design of DWMAs and WHMAs includes consideration (i.e. exclusions) for freeway exits and [illegible] in and adjacent to urban and agricultural centers. "Fixed-site" special status species and habitats (e.g., rare plants, bats, springs) which lie outside DWMAs and WHMAs will also be retained in public ownership to the extent practical.

Acquisition of private lands will be accomplished as much as possible and practical through exchange to reduce the impact of loss of tax-base to counties and only from willing sellers.

Objectives

a. Acquire habitat within the DWMAs and WHMAs (limited application in bighorn sheep corridors), to ensure long-term manageability of these areas for conservation of biological ecosystems.
b. Dispose of public lands where environmentally suitable for community expansion and private ownership.

Planning Area-wide Decisions and Management Strategy Common to Preferred, Small DWMA A, and Small DWMA B Alternatives

a. Acquisition will generally be prioritized as follows:
Occurrences of *Coachella Valley milkvetch.*
DWMAs
  1. High risk of development in areas of greatest habitat value (i.e., high tortoise density, populations connectivity points)
  2. Large acreage parcels
  3. High tortoise density
  4. High species richness
  5. All others

WHMAs
  1. Special habitat value
  2. High development risk
  3. Large acreage parcels
  4. High species richness
  5. All others

Wilderness Areas
  1. High development risk
  2. Special habitat value (e.g., springs, bat sites, bighorn sheep lambing areas)
  3. All others

b. Acquisition methods will generally be applied as follows but is subject to variation in application:
  1. 1 owner sections (640 acres) - exchange/Land and Water Conservation Fund (LWCF)
  2. 2-5 owners/section - LWCF/exchange/compensation
  3. 6-19 owners/section - compensation/LWCF
  4. 20+ owners/section - compensation, conservancy support, donation, assembled exchange

2.6.1 No Action Alternative
Objective a Acquire Sufficient Habitat

Action Federal agencies will seek to acquire state or private lands within some ACECs, tortoise Category I and II, and wilderness areas through purchase, donation, or exchange according to scheduled priorities. Low priority lands will be acquired only on a passive basis, *i.e.*, federal funding will not be sought; acquisitions will occur through means which do not require expenditure of federal funds (i.e., compensation, donation). Examples of low priority lands are 1) lands with little opportunity or support for private development; or 2) lands with a high density of owners where probability of acquisition of a manageable unit would be low, and the cost of implementing such acquisitions high. Additional guidance is in the California Statewide Desert Tortoise Management

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Policy.

Objective b -Identify Public Lands for Disposal into Private Ownership

Action Identify public lands suitable for disposal of least biological sensitivity and other management value into private ownership where consolidation and location of private land both promotes private development and increases tax base for local governments. Federal lands potentially suitable for disposal under this action could include lands along freeways and freeway exists, lands adjacent to urban, agricultural, and industrial centers, lands in checkerboard ownership outside other sensitive areas, lands in unclassified areas, and other lands deemed to be unmanageable under Federal ownership. Although exchange is the BLM's preferred method of disposal, the sale of lands could be considered.

2.6.2 Preferred Large DWMA Alternative

Objective a Acquire Sufficient Habitat

Action Federal agencies will actively seek to acquire lands or interests in lands within DWMAs and WHMAs (except within Bighorn Sheep corridors) through purchase, donation, or exchange according to scheduled priorities. In DWMAs this includes both private and State Lands Commission (SLC) lands. In WHMAs this includes only private lands. This action adds to existing policy to acquire both private and SLC lands in wilderness areas. Map 2-35 Appendix A and Tables 2-15, 2-16 and 2-17 show the locations and amounts of lands involved.

Objective b -Identify Public Lands for Disposal into Private Ownership

Action BLM will dispose of lands in areas outside wilderness, DWMAs, and WHMAs and not containing known occurrences of rare plants, springs, bat or other special status species and where such action supports consolidation and location of private land to promotes private development and increases tax base for local governments. In addition to the above Federal lands potentially suitable for disposal under this action could include lands along freeways and freeway exits, lands adjacent to urban, agricultural, and industrial centers, lands in checkerboard ownership outside other sensitive areas, lands in unclassified areas, and other lands deemed to be unmanageable under Federal ownership. Although exchange is the BLM's preferred method of disposal, the sale of lands could be considered.

Table 2-16 Acres of Private Lands in Proposed Management Areas Under Preferred/Large DWMA Alternative.

Management Area	**Acres by Density Class (Owners or Parcels per Section)**				
	1	2-5	6-19	20+	**Total**
Chemehuevi DWMA	103,981	4,815	6,624	10,480	**125,900**
Chuckwalla DWMA	58,970	13,710	21,725	31,802	**126,207**
Joshua Tree DWMA	41,137	300	8	42	**41,487**
BLM wilderness outside DWMAs	162,630	15,319	13,499	8,607	**200,056**
Bighorn Sheep & Multi-species WHMAs outside all above*	35,588	1,906	7,055	2,019	**46,568**
Total	**402,306**	**36,051**	**48,911**	**52,950**	**540,218**

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*excluding Bighorn Sheep corridors

Table 2-17 Acres of Private Lands in Proposed Management Areas Under Small DWMA A

Management Area	**Acres by Density Class (Owners or Parcels per Section)**				
	1	2-5	6-19	20+	**Total**
Chemehuevi DWMA	82,200	3,536	5,036	7,510	**98,282**
Chuckwalla DWMA	25,149	5,734	15,584	18,818	**65,292**
Joshua Tree DWMA	41,137	300	8	42	**41,487**
BLM wilderness outside DWMAs	219,111	24,638	23,412	32,520	**299,680**
Bighorn Sheep & Multi-species WHMAs outside all above*	35,589	1,907	7,096	2,019	**46,610**
Total	**403,186**	**36,114**	**51,135**	**60,909**	**551,344**

*excluding Bighorn Sheep corridors

Table 2-18 Acres of Private Lands in Proposed Management Areas Under Preferred Small DWMA B

Management Area	**Acres by Density Class (Owners or Parcel per Section)**				
	1	2-5	6-19	20+	**Total**
Chemehuevi DWMA	82,200	3,536	5,036	7,510	**98,282**
Chuckwalla DWMA	25,157	5,734	15,584	18,818	**65,292**
Joshua Tree DWMA	41,137	300	8	42	**41,487**
BLM wilderness outside DWMAs	184,536	19,741	22,420	32,963	**259,659**
Bighorn Sheep & Multi-species WHMAs outside all above*	35,642	1,907	7,096	2,055	**46,699**
Total	**368,672**	**31,217**	**50,143**	**61,388**	**511,420**

*excluding Bighorn Sheep corridors

2.6.3 Small DWMA A Alternative

Objective a Acquire Sufficient Habitat

Action Federal agencies will actively seek to acquire lands or interests in lands within DWMAs and WHMAs (except within Bighorn Sheep corridors) through purchase, donation, or exchange according to scheduled priorities. In DWMAs this includes both private and State Lands Commission (SLC) lands. In WHMAs this includes only private lands. This action also adds to existing policy to acquire both private and SLC lands in wilderness areas. Map 2-36 Appendix A and Tables 2-15 and 2-17 show the locations and amounts of lands involved.

Objective b -Identify Public Lands for Disposal into Private Ownership

Action Same as Preferred Alternative.

2.6.4 Small DWMA B Alternative

Objective a Acquire Sufficient Habitat

Action Federal agencies will actively seek to acquire lands or interests in lands within DWMAs and WHMAs (except within Bighorn Sheep corridors) through purchase, donation, or exchange according to scheduled priorities. In DWMAs this includes both private and State Lands Commission (SLC) lands. In WHMAs this includes only private lands. This action also adds to existing policy to acquire both private and SLC lands in wilderness areas. Map 2-37 Appendix A and Tables 2-16 and 2-17 show the locations and amounts of lands involved.

Objective b -Identify Public Lands for Disposal into Private Ownership

Action Same as No Action Alternative.

2.7 Access to Resources for Economic and Social needs

No plan actions are described, but there are some important points to note. While no specific action is included here, this public scoping issue has provide fundamental guidance in developing decisions that address other issue items. The intent in developing this Plan was to address all the major issues on an equal basis, to meet the goal of Public Land Health with the least expense to access and use of resourcces. A summation of the decisions proposed for these other issue items in Chapter 2 and the cumulative effects described in Chapter 4 will suggest to what extent this intent has been achieved.

Since the public scoping meetings were held and issue conclusions developed for the Plan, the CDPA passed (October, 1994). The CDPA had a considerable effect on this subject. It created new data, analyses, and obvious areas for protection of species and habitats. It also reduces access and heightened the sensitivity on this issue.

The emphasis that this issue provides is translated into the following guidance:

a. Utilize existing Congressional and protective land use designations as much as possible to develop areas of conservation emphasis for the desert tortoise and other species and habitats and minimize the need for additional area for this purpose.
b. Develop management areas with management emphases that are commensurate with the issues contained - i.e., the degree of restriction and cost of use should be in line with what is appropriate the array of species issues.
c. Manage species and habitats by increasing the cost of doing business as opposed to imposing additional restrictions.
d. Decisions based on science and science-based judgement, on Regional and long-term perspectives, and on cooperative approaches have the best chance of standing the test of time, minimize further need for restrictive management, and maximize possible future relaxation of current restrictions and expenses.

2.8 Incorporation of Changes to the California Desert Conservation Area (CDCA) Plan created by the California Desert Protection Act (CDPA)

The Congressionally created CDPA created 23 new BLM wilderness areas in the Planning Area, added lands to and changed Joshua Tree National Monument to a Park, and created new wilderness areas in JTNP. The new wilderness designations must also be incorporated into JTNP and BLM land use plans. This has already occurred for JTNP, but will occur through NECO for BLM lands. For BLM lands an additional land use change associated with their creation is required as is described below under the heading, MUC Remnants. The changes are required and allow for no choice (except as noted below), so what is described below is the same for all alternatives.

2.8.1 No Action Alternative

Not addressed.

2.8.2 Preferred/Large DWMA Alternative

Action [17]Incorporate 23 CDPA-designated wilderness areas into the CDCA Plan. Wilderness areas will be managed according to law, regulations, policies and manuals for wilderness management. Additionally Wilderness areas will be designed MUC C and closed to vehicle use under CFR 8342. designated and closed to vehicle use under CFR 8342. These areas are listed below (from north to south) and depicted on Map 2-38 Appendix A:

- Bigelow Cholla Garden
- Clipper Mountains
- Stepladder Mountains
- Whipple Mountains
- Old Woman Mountains
- Sheephole Valley
- Rice Valley
- Palen/McCoy
- Orocopia Mountains
- Little Chuckwalla Mountains
- Indian Pass
- Little Picacho Peak
- Piute Mountains
- Trilobite
- Chemehuevi Mountains
- Turtle Mountains
- Cadiz Dunes
- Riverside Mountains
- Big Maria Mountains
- Mecca Hills
- Chuckwalla Mountains
- Palo Verde Mountains
- Picacho Peak

MUC Remnants

Background

The new set of BLM wilderness areas overlaid all or portions of previously designated MUC C, L, and M areas. Wilderness designation supercedes any previous MUC designation. However, the "edge fit" of the wilderness areas over the previous designations - even areas proposed for wilderness - MUC C, L and M areas- was not an exact fit in many cases. The result is that many small portions of previously large MUCs extend beyond wilderness boundaries. These small areas are referred to as "remnants". All the wilderness areas in the NECO Planning Area have gone through the boundary refinement process and approval and are GIS mapped. Most remnants are extremely long and narrow and small and are unmanageable as independent MUCs and should be reassigned as another MUC. They lie between the various wilderness areas and some different adjacent MUC areas. In the case of remnant MUC C areas the Desert Plan directs that they automatically and temporarily be reassigned as MUC L until such time as they are permanently assigned a MUC through the plan amendment process. Because the boundaries of wilderness areas cannot be changed, the compelling solution for reassigning most remnants in to assign them to the adjacent non-wilderness MUC as described in the action below. Reassignments vary among alternatives depending upon the nature of DWMA and other proposals. The scope of this action does not include the following:

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[17] All BLM wilderness study areas which were identified under the wilderness review requirements of section 603 of FLPMA have been released and no longer exist.

1. large MUC L and M remnants which can stand alone
2. Access road "cherry stems" into wilderness areas

As a reminder and as noted in the Desert Plan, MUCs C, L, M, and I designations apply only to federal lands portion of the MUC areas so this subject and the action below has no affect on private lands.

Action Reassign all "remnant" MUCs identified in 2-2 to new MUCs, as indicated on Map 2-7 Appendix A.

Although not specifically identified as such, remnants are shown as a group on Map 2-2 Appendix A. The smallest sized remnants are too small to be observable on this map. More information and details are available at the Riverside Office of the Bureau of Land Management.

2.8.3 Small DWMA A Alternative

Action Reassign all "remnant" MUCs identified in 2-2 to new MUCs, as indicated on Map 2-12 Appendix A Although not specifically identified as such, remnants are shown as a group on Map 2-2 Appendix A. The smallest sized remnants are too small to be observable on this map. More information and details are available at the Riverside Office of the Bureau of Land Management.

2.8.4 Small DWMA B Alternative

Action Reassign all "remnant" MUCs identified in 2-2 to new MUCs, as indicated on Map 2-12 Appendix A. Although not specifically identified as such, remnants are shown as a group on Map 2-2 Appendix A. The smallest sized remnants are too small to be observable on this map. More information and details are available at the Riverside Office of the Bureau of Land Management.

Chapter 3 - Affected Environment

This chapter describes those physical, biological, social, and economic characteristics of the land, water and air resources administered by the BLM, Northern and Eastern Colorado Desert Area, of the California Desert District that affect, or are affected by, the issues and management concerns within this plan. Much of the material in this chapter summarizes information developed in the CDCA Plan and the Current Desert Tortoise Management Situation in Northern and Eastern Colorado Desert Planning Area.

The purpose of this chapter is to serve as base line data for identifying and analyzing the impacts of the four alternatives in this plan. These alternatives are described in Chapter 2, and the effects of these alternatives on the environment are described in Chapter 4. The following material describes the resources affected by this plan.

3.1 Air Quality

Air quality is determined by factors such as landforms, amount of contaminants emitted into the atmosphere, and meteorological conditions. In the eastern Colorado Desert, stable atmospheric conditions, low mixing heights, and light winds during evening and morning hours provide opportunities for contaminants to accumulate. In addition, the Los Angeles Air Basin contributes to photochemical smog such as ozone (0_3) to most of the Planning Area.

The Clean Air Act established National Ambient Air Quality Standards for concentrations and durations for which pollutants may cause adverse health effects. National primary ambient air quality standards define levels of air quality, with an adequate margin of safety to protect the public health. National secondary ambient air quality standards define levels of air quality, with an adequate margin of safety, to protect the public welfare from any know or anticipated adverse effects of a pollutants.

Carbon monoxide is produced primarily by incomplete fuel combustion in motor vehicles. The major effects of carbon monoxide occur near its sources (busy streets and freeways). Carbon monoxide standards in the Planning Area have not been exceeded due to the low levels of traffic and development.

The primary contributor of PM_{10} is fugitive dust, occurring both naturally in a desert environment and from human causes such as mining operations, OHV use and grazing. The latter are largely responsible for excesses of both the National and State PM_{10} Air Quality Standards within the Planning Area (see figure 3-1).

Ozone is produced through a series of chemical reactions. A reaction between reactive hydrocarbons and nitric oxides, both of which are primarily emitted by motor vehicles, forms nitrogen dioxide and other compounds. The formation of nitric oxide and an oxygen atom follows the photodissociation of the nitrogen dioxide by sunlight. The oxygen atom then combines with oxygen molecules to form ozone. Ozone is an irritant of the respiratory system and inhibits proper functioning of the lungs. The primary source of Ozone is from the Los Angeles Basin and additionally from traffic throughout the area. Currently all of the NECO Planning area is in non-compliance with both Federal and State Ambient Air Quality Standards (figure 3-2).

Figure 3-1

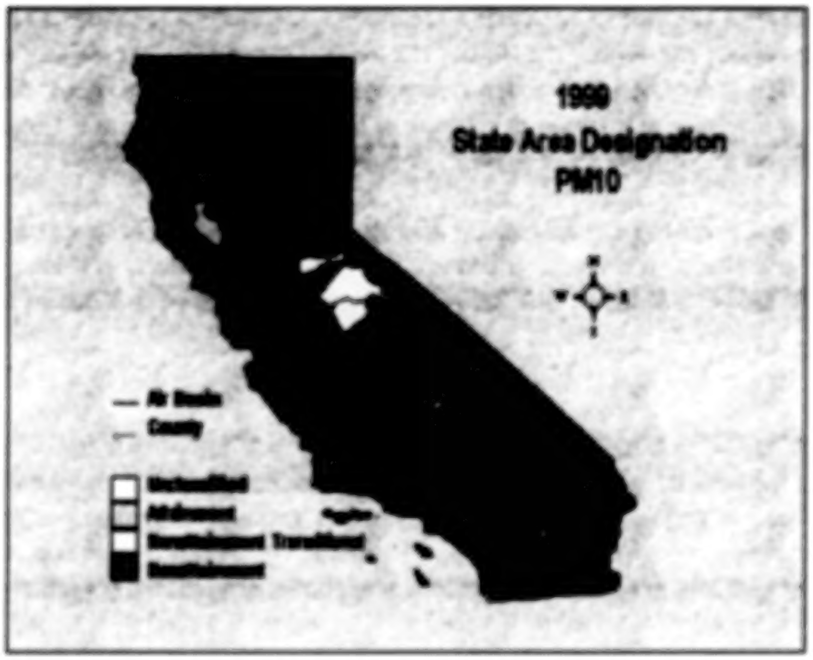
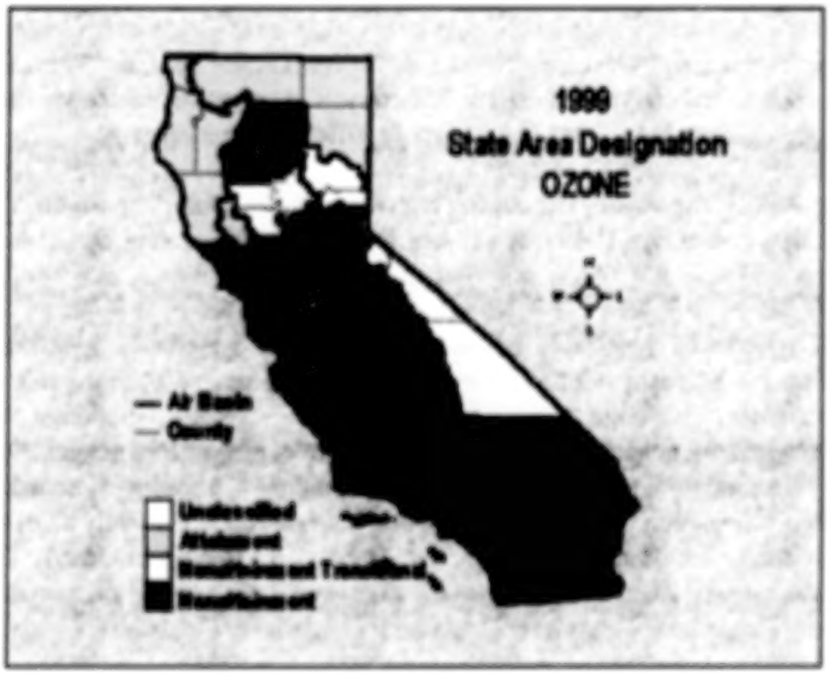


Figure 3-2



Air pollutants have the potential to affect several components of the environments including, but not limited to, humans, wildlife, fish and vegetation. Air pollutants affect wildlife through inhalation, adsorption and/or ingestion. Populations can be directly affected through injury or death or indirectly through contamination of their food chain or loss of habitat.

Visibility is generally referred to as the relative ease with which objects can be seen through the atmosphere under various conditions. Particulate matter and gases introduced into the atmosphere either absorb or scatter the light, reducing the amount of light a person can receive from a viewed object. Visibility is easily impaired by activities which generate dust (especially fine particulates such as PM_{10}) and sulfur dioxide. Impact to visibility from pollutants transported from the major urban centers is likely and, when present, is probably in the form of widespread regional haze. The urban plume from the Los Angeles Basin also frequently impairs visibility in the vicinity of JTNP.

Local pollution sources in the Desert consist primarily of particulate matter from off-road vehicles, windblown soil, mining operations, and agricultural activities.

3.2 Water Quality

The Planning Area contains portions of six watersheds: Havasu-Mohave Lakes, Piute Wash, Southern Mojave, Imperial Reservoir, Southern Mojave, Salton Sea and the Lower Colorado. There is little information about the water quality in the Planning Area but it is assumed that the quality of the water diminishes as the rains recede and the warmer temperatures cause evaporation of the water source.

Since there are no perennial streams, wildlife seek out natural springs for water during times of drought or low rain months. Guzzlers (man-made springs) also are used by wildlife for this same purpose. These guzzlers have been designed with a underground vault to catch and store water runoff for wildlife to utilize during times of low precipitation. Washes, springs, and guzzlers are located throughout the Planning Area with the highest concentration of guzzlers and springs in the mountain ranges (Map 3-1 Appendix A) and washes are distributed throughout the Planning Area (Map 3-2 Appendix A). Some springs and seeps are susceptible to fecal coliform contamination from livestock grazing, wild horses and burros and various wildlife.

Other water issues include; human consumption for agriculture as in the Coachella Valley and in Blythe and development demands which require water wells. This issue could involve the water table to become lowered in areas such as Desert Dry Wash Woodland vegetated areas.

Water Resources

The amount and seasonal distribution of precipitation is the most important physical condition limiting the boundaries of the Sonoran Desert and is likewise the most important in determining the differences to be found in the various parts of that area.. Most parts of the Sonoran desert receive less than 10 inches of rainfall per year. Thus, most of the region's water is taken from the ground or diverted from the Colorado River.

In its importance for plants there is a wide difference between rain of a given amount in the cool months and in the hot ones. The up build of soil moisture effected by a brief torrential downpour is much less than that from a gradual rain of the same amount (Shreve, Wiggins 1964). Of particular importance to plants are the number and duration of drought periods, which may be defined as periods without rain or with none of

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sufficient amount to affect the soil moisture. Such periods with a duration of 30 to 60 days are of almost annual occurrence in the Sonoran Desert. The large nonsucculent perennials are able to withstand then by drawing on the deep-seated moisture.

Rainfall that occurs during the heavy summer monsoons is carried downstream through a system of desert washes. Surface water occurs mostly in bedrock controlled channels which originate in mountain ranges and flow seasonally into alluvial channels at lower elevations (Graf 1988).

3.3 Soil Quality

Erosion Processes

Two major processes shape the desert landscape: (1) erosion by wind and water and (2) deposition of aeolian or fluvial sediments. Erosion is a natural and important process in the desert. It can exert a large force because of the lack of vegetation in desert systems. Erosion also affects biostasic processes such as nutrient cycling and biogeochemical cycling in soil and water. Factors affecting temporal and spatial variation in erosion are rainfall, vegetation, soils, and slope.

Erosion by water results in high sediment loads in desert streams. Sediment is derived from direct contributions from slopes and materials from the bed and banks. Large streams tend to carry more of the latter; small streams more of the former. Sediments are largely sand and gravel with little silt, clay, or large debris.

Sediment transport in desert streams can reveal much about a stream channel's processes. Particle size, shape, and deposition pattern reflect distance traveled, strength and duration of flood, and volume of water moved. Smaller particles are moved farther than large boulders. Large assemblages of boulders indicate past catastrophic flooding. Deposition of fine particles increases as water moves down valley in desert streams. Infiltration and evaporation increase as sandy substrate and width of wetted channel increase and flood peaks and total discharge eventually decrease to zero (Graf 1988).

Sediment that is carried by desert washes and flood plains contribute to the nutrition and moisture content of the soil. In turn this richer, moister soil supports unique vegetation communities such as dry wash woodlands which support associated fauna such as migrant birds. Map 3-3 Appendix A shows the vegetation coverage with the desert dry woodlands being represented by the light green color.

An example of a landform that has been shaped by these processes is desert pavement. The desert pavement surface is generally flat and smooth and lacks fine particles such as sand in its upper layers. Desert pavements originated as stream deposits millions of years ago, perhaps during the Tertiary period (Peel 1960). The surface of these deposits leveled and lowered over time creating the "pavement" of stones we see today.

Other landforms that can be found in the Planning Area are sand covered alluvial fans, dissected alluvial fans, mountains, hills, pediments, sand dunes, playas, river washes, lava flows, plateaus, and plains (Map 3-4 Appendix A).

3.4 Biological Resources

The CDCA Plan outlines management tools available to meet the objectives of managing for species and habitats. These tools include the designation of multiple-use classes, designation of Areas of Environmental Concern (ACECs), Habitat Management Plans (HMPs) and Special Areas (SA).

Wilderness Areas, enacted through the Wilderness Act of 1964, can be considered advantageous to species and habitats because the uses are limited to non-motorized and low impact recreation, the areas are a minium of five thousand acres and the management goals of Wilderness are consistent with the needs of many species and habitats (see section 3.6 Wilderness Management).

Multiple-Use Classes

Four multiple-use classes were developed in the CDCA Plan. Each describes a different type and level or degree of use which is permitted within that particular geographic area. The multiple-use guidelines were set up to provide for uses in areas that would enhance those inherent values (see the CDCA Plan for multiple-use guidelines). In areas with high sensitive, natural, scenic, ecological, or cultural resource value low intensive use is appropriate to enhance these values. In areas were intensive use such as mining or motor-vehicle recreation use was present, an intensive value would be assigned.

Areas of Environmental Concern

There are six ACECs (Map 2-4 Appendix A) which are managed for biological resources within the Planning Area. They include, Bigelow Cholla ACEC, Chuckwalla Bench ACEC, Dos Palmas ACEC, Desert Lily Preserve, Chuckwalla Valley Dune Thicket and Corn Spring ACEC. The prescriptions applied to an ACEC direct the types of uses and protection that a specific area will have. Although an ACEC might limit uses to benefit a single species such as the desert tortoise or the desert lily, many species that co-exist with these plants or animals reap the benefits as well. A good example of this is the Chuckwalla Bench ACEC which consists of 92,592 acres in southeastern Riverside County. The CDCA Plan designated this ACEC primarily for desert tortoise and big horn sheep (Chuckwalla Mountains), however many species such as burro deer and a wide variety of birds have overlapping habitat which is conserved by the ACEC designation.

ACECs have a multiple-use Class L, however there are exceptions where there are conflicts or pre-existing uses.

Habitat Management Plans

There are five HMPs (Map 2-4 Appendix A) that prescribe management for species and habitats in the Planning Area. Orocopia HMP, Marble Mountain HMP, Whipple Mountain HMP, and Sheephole Mountain HMP are plans that address the big horn sheep and are in Wilderness areas. Milpitas HMP is a multi-species habitat management plan located in Imperial County. This 180,800 acre HMP is approximately 1/3 *multiple-use class* M and the remaining 2/3 is *class* L. Management objectives include consolidation, protection and enhancement of wildlife habitat and habitat for plants of special management concern, expansion of habitat used by burro deer and other native wildlife species, consideration of all wildlife species in development and management decisions, and obtaining "good" ecological condition of 70% of the HMP (Table 1-2).

Proposed *HMPs* from the CDCA plan that have not been initiated include: Fenner/Chemehuevi Valleys, Chemehuevi Wash, Stepladder Mountains, Vidal Wash, Whipple Mountains, Cadiz Dunes, Eagle Mountains, Coxcomb Mountains, Granite Palen Mountains, Rice Valley Dunes, McCoy Wash, Ford Dry Lake, Palo Verde Mountains, and Indian Wash.

The Orocopia Mountains Habitat Management Plan and Chuckwalla Mountains Native Ungulate Habitat Management Plan include management actions addressing needs of burro deer (and bighorn sheep). The two plans cover 80,000 and 296,000 acres, respectively (Map 2-4 Appendix A). The Orocopia Mountains HMP proposed five new water developments, improvements to existing springs, tamarisk removal, monitoring, and improved coordination among agencies. The Chuckwalla Mountains Native Ungulate HMP proposed new and improved water developments, improvements to tenajas (natural rock basins), militations for mining, reduction of the Ford Dry Lake Allotment (accomplished), and monitoring. These plans were prepared and implemented in cooperation with CDFG.

Research and Monitoring

The CDCA Plan outlined a research and "monitoring system" that would gauge the effectiveness and overall success of wildlife management and the entire plan. Baseline studies and research needs included:

1. The impact of approved access routes, particularly in habitats of officially listed species, sensitive species, and raptors;
2. Effectiveness of increased surveillance in controlling vandalism;
3. Effects of grazing practices on desert bighorn sheep and desert tortoise and their habitats;
4. Effects of burro populations and reductions on species such as the desert bighorn sheep;
5. Conditions of fish and wildlife water sources, particularly those used by people, livestock, horses and burros, and mining interests;
6. Effects of continued vehicle use on wildlife habitats and populations in areas designated as "open" for vehicle free play;
7. Condition and trends for officially listed, sensitive, and certain other species; and
8. Effectiveness of HMPs and ACECs in stabilizing or improving populations and habitats for officially listed, sensitive, and certain other species and their habitats.

Although the monitoring plan has never been fully developed and implemented, there are individual monitoring and research efforts going on throughout the Planning Area.

Desert Tortoise Management

Each of the three Federal land management agencies (BLM, NPS, USMC) have land use plans or programs which incorporate some type of zoning and special management prescriptions. For the BLM, the land use plan is the *CDCA Plan of 1980* (BLM 1980). For JTNP, there is a General Management Plan (NPS 1999). For CMAGR there is a *Draft Environmental Impact Statement for the Yuma Training Center Complex* (USMC 1995). All of these plans address desert tortoise needs to some degree.

In addition, the BLM has a "Rangewide Plan" entitled *Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan* (BLM 1988). This plan sets forth a series of 14 management objectives and policies to be implemented on public lands in the range of the desert tortoise. The Rangewide Plan established the Desert Tortoise Management Oversight Group (MOG) consisting of top-level managers from most land management and wildlife agencies in the tortoise range. The Rangewide Plan directed BLM to categorize desert tortoise habitat into three zones reflecting BLM's tortoise management goals.

The BLM also has a "Statewide Policy" for desert tortoise management; it is entitled *California Statewide Desert Tortoise Management Policy* (BLM 1992). The Statewide Policy established a desert tortoise Category (2-2 Appendix A), which has been incorporated into the CDCA Plan, also. BLM has about 1,040,000 acres in Category I habitat and about 211,000 acres in Category II habitat in the NECO Planning Area; BLM's goal in Category I and II habitat is to maintain viable populations of desert tortoise .

In 1994 the USFWS designated *critical habitat* for the desert tortoise Mojave Population (USFWS 1994)(see Map 3-5 Appendix A). At that time Joshua Tree national Monument was not included as critical habitat because USFWS believed that current management policies provided adequate protection for the desert tortoise. Subsequently, the Monument was designated a national Park and was expanded. Hence, it now includes some desert tortoise critical habitat. Table 3-2 shows the total amount of critical habitat and the amount in various ownerships and jurisdictions. Critical Habitat encompasses 42 percent of the Planning Area. Federal agencies are required to conserve critical habitat, and Federal agencies and all others must comply with USFWS requirements before disturbing critical habitat.

Table 3-1. Acres (and percentages) of critical habitat in various Federal and State jurisdictions and private ownership.

Landowner	Acres in critical habitat	Percent of critical habitat	Percent of Planning Area
Federal			
BLM	1,275,316	69	25
JTNP	161,691	7	3
CMAGR	186,423	9	3
State			
CDFG	5,776	<1	<1
State Lands Commission	62,762	2	1
Private			
Catellus	132,578	2	1
Metropolitan Water Dist.	10,607	1	<1
Cadiz Land Company	3,526	<1	<1
Other	192,159	9	3
Total Private	338,870	12	4
TOTAL IN NECO PLANNING AREA	2,332,960	100	36

Several diseases occur in desert tortoises (Jacobson 1993b, Homer *et al.* 1994, 1996), and at least two disease - upper respiratory tract disease (URTD) and shell disease - and perhaps others are significantly affecting wild populations of desert tortoise. To prevent the spread of disease, the BLM, USFWS, CDFG, and other agencies have developed policies on tortoise handling and relocation of tortoises. USGS and others are conducting research on diseases to determine the pathology and epidemiology of tortoise diseases.

Only about nine tortoises from the Planning Area have been tested for URTD; several, including two from JTNP, showed clinical signs of URTD and tested positive for the causative agent, *Mycoplasma*.

At least two and possibly more shell disease have been identified in the Planning Area - cutaneous dyskeratosis (Homer *et al.* 1994, 1996, Jacobson *et al.* 1994) and shell necrosis (Homer *et al.* 1994, 1996). The causes of these diseases are not known. Cutaneous dyskeratosis is present in higher frequencies in the Planning Area than in other areas of California. It is believed to be associated with declines in Chuckwalla Bench and Upper Ward Valley (Berry, unpubl.).

Compared to other parts of the State, there are relatively few fires in the Planning Area and most are small. In the 15 years between 1980 and 1995, a handful of fires burned a total of about 6,000 acres. Of this amount, only about 900 acres in the Chemehuevi Critical Habitat Unit and only about 11 acres in the

Chuckwalla Critical habitat Unit. No fires have been reported from CMAGR in the last 10 years. Most fires in the desert are caused by lightning or vehicles.

BLM and NPS have collaborated in the development of the *Fire Management Activity Plan (FMAP), 1996, for the California Desert*. The FMAP brings together fire management goals for biological resources, wilderness, and other sources and establishes fire management standards and prevention and protection programs. The FMAP includes limitations on fire suppression methods in critical habitat and other tortoise habitat; the limitations are designed to limit habitat disturbance while keeping fires small.

The BLM outlined its desert tortoise *Public Education Plan* in the Statewide Policy (BLM 1992). Much of that plan has been implemented, but some is on-going. The Public Education Plan recognized the contributions of other Federal and State agencies and private organizations, such as the Desert Tortoise Council, Desert Tortoise Preserve Committee, and California Turtle and Tortoise Clubs. The plan consists of brochures, slide presentations, public tours, videos, children's printed materials, signs, kiosks, and public forums and conferences.

BLM and JTNP rangers and CDFG wardens conduct an active public contact program informing visitors about the desert tortoise. JTNP provides an education program presented to about 12,000 children per year, and over a million people a year visit the visitor center where there is information about the desert tortoise. The BLM has tortoise educational displays at visitor centers at the Santa Rosa Mountains Visitor Center just outside the Planning Area.

Included in the mitigation measures for all projects in desert tortoise habitat is a worker education program. Workers view a presentation or video describing tortoise ecology and threats, legal status, etc. Aircrews and visitors to CMAGR participate in a similar environmental program.

In 1979 and 1980 the BLM established four square-mile, permanent study plots for measuring trends in tortoise populations size and changes in age and size structures. Table 3-2 shows the plot locations and years surveyed. The plots have provided valuable data on general biology and impacts as well. Survey of the plots has been transferred to USGS.

Table 3-2. List of desert tortoise permanent study plots in the Planning Area and the years surveyed using standard protocols.

Study Plot name (Plot No.)	Years surveyed
Upper Ward Valley (16)	1980, 87, 91, 95
Chemehuevi Wash (20)	1979, 81, 88, 92, 99
Chuckwalla Bench (23)	1979, 82, 88, 90, 92, 97
Chuckwalla Valley II (26)	1980, 87, 91

In JTNP, one permanent study plot was surveyed in 1978 according to standard protocols. In subsequent years (e.g., 1991-1996) various surveys using non-standard methods were done. About 10 other plots of varying sizes were surveyed on an experimental basis throughout JTNP.

A revised monitoring program using a "distance-sampling" methodology has been approved by the Desert Tortoise MOG. The new methodology has been initiated on CMAGR but not elsewhere because of funding constraints.

Desert Bighorn Sheep Management

There are five BLM/CDFG habitat management plans in the NECO Planning Area that address habitat needs of bighorn sheep (Map 2-4 Appendix A and Table 3-3). All five plans were prepared and implemented in cooperation with CDFG. The Whipple Mountains HMP prescribed three new water developments and the reintroduction of bighorn sheep; this plan was fully implemented. The Sheephole Mountains HMP prescribed population augmentation and monitoring; this plan has been fully implemented. The Orocopia Mountains HMP prescribed five new water developments, improvements to existing springs, tamarisk removal, monitoring, and improved coordination among agencies. The Chuckwalla Mountains Native Ungulate HMP new and improved water developments, improvements to tenajas (natural rock basins), militations for mining, reduction of the Ford Dry Lake Allotment (accomplished), and monitoring. The Marble Mountains HMP prescribed one new water development, monitoring, hunting, and coordination. Other HMPs were proposed in the CDCA Plan for bighorn sheep in the Eagle Mountains, Coxcomb Mountains, and Granite/Palen Mountains. These plans will not be prepared because the first two are now largely in JTNP and the last has a low priority for bighorn sheep planning.

Table 3-3. Existing bighorn sheep habitat management plans in the NECO Planning Area.

Bighorn sheep HMP (year approved)	Size (ac.)
Whipple Mountains HMP (1982)	64,000
Sheephole Mountains HMP (1984)	6,000
Orocopia Mountains HMP (1986)	80,000
Chuckwalla Mountains Native Ungulate HMP (1989)	296,000
Marble Mountains HMP (1989)	102,000

BLM guidance for management of bighorn sheep throughout its range is contained in "Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska" (BLM 1995). For California, eight desert bighorn sheep metapopulations are identified. The NECO Planning Area includes the eastern 2/3 (and 60 percent of the animals) of the Southern Mojave Metapopulation and all of the Sonoran Metapopulation (Torres *et al.* 1996). The Strategy's aim is to "Ensure sufficient habitat quality and quantity to maintain and enhance viable big game [including bighorn sheep] populations, and to sustain identifiable economic and social contributions to the American people." "Viable populations" of bighorn sheep are defined as those having a 99 percent chance of surviving for 30 years. The Strategy presents goals and recommended strategies addressing partnerships, planning, habitat inventory, habitat monitoring, land tenure adjustment, habitat protection, habitat improvement, research, and outreach.

In 1997, BLM and CDFG signed a Memorandum of Understanding (MOU) for Wildlife Management Activities in Wilderness. The purpose was to establish a framework for cooperation and procedures for CDFG maintenance of wildlife facilities, wildlife management activities, and research in BLM wilderness where vehicles and mechanical equipment are needed. These activities in wilderness are authorized specifically by the California Desert Protection Act of 1994 (Sec. 103(f)). the MOU aids in maintaining a strong partnership between BLM, CDFG, and bighorn sheep and deer conservation groups.

Throughout the Planning Area (#) artificial waters have been developed, generally at remote, mountainous sites, to stabilize and increase populations of bighorn sheep by providing not only more water but also access to useable forage through near-by water (see proposals and discussion for bighorn sheep in chapters 2 and 4 and Map 3-1 Appendix A). The work has gone on for decades. The need is created in part by a human-intrusions on a landscape scale: development along the Colorado River, barriers to movement created by freeways, and sheep losses to drowning in the Coachella Canal. (#) of these artificial waters are located south of I-10. The designs of these developments include spring boxes, complicated pipe-tanks, windmills-tanks, and modifications of natural tenajas. Some of the waters are highly visible, are old and worn out, and are a high maintenance item. Nine waters are wells, all of which no longer produce water. Most of these facilities are now located deep into wilderness areas.

Connectivity has been greatly reduced and hazards increased for bighorn sheep throughout the Planning Area. Prior to the imposition of modern day intrusions (e.g., freeways, canals, farming, various forms of recreation, and tamarisk vegetation along the Colorado River) bighorn sheep were able to range across the landscape as a common herd. Today interstate freeways (I-10 and I-40) have effectively fragmented and isolated the population into two: the Sonoran Metapopulation and Southern Mojave Metapopulation. The Coachella Canal and tamarisk along the Colorado River provide additional artificial conditions: bighorn sheep will not attempt to penetrate the uniformly dense tamarisk thickets to feed, drink, or migrate; long stretches of the Canal, which attracts bighorn sheep to drink, are unfenced and serve as death traps. Additional developments and permanent and transitory human occupations reduce the occurrence of bighorn sheep movement. Finally, the presence and management of wild burros and some domestic sheep grazing add more stresses through competition for water and forage and possible disease transmission (sheep to sheep). All together these factors and forces diminish the ability of bighorn sheep to withstand numbers-reducing events and challenge survival on a metapopulation level.

Table 3-4 shows the acres and percent of the "occupied range," "unoccupied former range," and "movement corridor" in the four livestock grazing allotments (Map 2-5) in the NECO Planning Area. None of these allotments has an allotment management plan.

Table 3-4. Acres and percent of area for three categories of bighorn sheep use in livestock grazing allotments in the NECO Planning Area.

Bighorn sheep use categories	Lazy Daisy Cattle	Chemehuevi Cattle	Rice Valley Sheep	Ford Dry Lake Sheep
Occupied Range	125,644 (7)	2,643 (<1)		
Unoccupied Former Range			195 (<1)	
Movement Corridor	105,438 (18)	61,942 (10)		

3.4.1 Wildlife

The desert that makes up the NECO Planning Area is a large and diverse region containing parts of two major deserts and a complex combination of soil, topographic, vegetation, and climatic types. This intermingling across the length and breadth of the Planning Area has produced a number of major ecosystems, resulting in the species occurrences discussed briefly here. Special status species include the following (see Appendix N for further species information):

Desert bighorn sheep (*Ovis canadensis* subspecies *nelsoni*)
Bighorn sheep occur in small, isolated subpopulations (demes) within two larger metapopulations in the

Planning Area (Map 2-18 Appendix A). Specific trend data for the subpopulations are not available, but some have declined in recent years. It has been shown that population sizes of 50 individuals or less went extinct in less than 50 years, while populations of greater than 100 sheep persisted for up to 70 years. Movement between subpopulations functions to reduce inbreeding in small subpopulations and to maintain genetic vigor in the larger metapopulation. Movement between mountain ranges is necessary to recognize extirpated ranges.

Desert bighorn sheep is a BLM California Sensitive Species and a State Fully Protected Species and a Game Species.

Burro deer (*Odocoileus hemionus eremicus*)
Burro deer is a subspecies of mule deer found in the Colorado Desert of Southern California (Map 3-7 Appendix A). They are found primarily along the Colorado River and in Desert Wash Woodland communities away from the River. Some burro deer are resident along the Colorado River, but a significant pertion move into desert areas in response to water and forage. During the hot summers, water is critical, and deer concentrate along the Colorado River or the Coachella Canal where water developments have been installed and where the microphyll woodland is dense and provides good forage and cover. With late summer thundershowers and cooler temperatures, deer move away from the River and Canal up the larger washes into mountains or wash complexes in the foothills.

Mountain Lion (*Felis concolor*)
In the Planning Area, mountain lions inhabit primarily the low mountains and extensive microphyll washes in and around Chuckwalla Bench, Chuckwalla Mountains, Chocolate Mountains, Picacho Mountains, Milpitas Wash, Vinagre Wash, and other washes in that area (Map 3-6c Appendix A). Mountain lions generally require extensive areas of riparian or shrubby vegetation interspersed with irregular terrain, rocky outcrops, and community edges.

Within the Planning Area mountain lion are restricted to the southern Colorado Desert from Joshua Tree National Park south and eest to the Colorado River. They are found in very low numbers primarily in the mountains and wash systems in Imperial County. Burro deer, the primary prey, are known to spead the hot summer and fall in riparian areas along the Colorado River and in dense microphyll woodlands near the Coachella Canal. In winter and spring they move up major washes north from the Coachella Canal and west from the Colorado River. Presumably mountain lions respond to these movements. It may be that mountain lions in the Planning Area are merely transient individuals wandering out of other areas and not part of a resident population of mountain lions.

Habitat fragmenting factors, such as Interstate Highways (especially Interstate 10) and aqueducts (especially the Coachella Canal), that affect the distribution and movements of burro deer are probably important to the distribution of mountain lions in the Planning Area. Deer populations along the Colorado River have declined as tamarisk has replaced native riparian vegetation; mountain lion numbers have probably declined with this primary prey.

The mountain lion in the Planning Area is sometimes referred to as Yuma puma (f.c. browni). Under that name it is a State Species of Special Concern.

California leaf-nosed bat (*Macrotus californicus*)
California leaf-nosed bats occur in the deserts of California, southern Nevada, Arizona and south to northwestern Mexico. In California, they are now found primarily in the mountain ranges bordering the

Colorado River Basin, with some records occurring as far west as the Eagle Mountains. In California, surveys showed about 20 maternity colonies and about the same number of winter roosts (Map 3-6c Appendix A). The two largest roosts (each sheltering 1500 bats in winter) are in mines in extreme southeastern California.

California leaf-nosed bats occur in lowland desert habitat in California in close proximity to desert wash vegetation. They are dependent on either caves or mines for roosting habitat. All major maternity, mating, and overwintering sites are in mines or caves.

Due to restrictive temperature requirements, California leaf-nosed bats seek out mines that provide roost temperatures of approximately 80°F. In the Colorado River Basin, all known winter roosts are in geothermelly-heated mine workings, and the areas used by the bats may be over a half-mile underground.

The primary factors responsible for the declines are roost disturbance, the closure of mines for renewed mining and hazard abatement, and the destruction of foraging habitat. The combination of limited distribution, restrictive roosting requirements, and the tendency to form large, but relatively few colonies make this species especially vulnerable.

California leaf-nosed bat is a State Species of Special Concern.

Occult little brown bat (*Myotis lucifugus* subspecies *occultus*)
Occult little brown bat is a medium-sized myotis that is difficult to distinguish from other *Myotis* species. In California, they are associated with desert riparian vegetation along the Colorado River. Females form large maternity roosts. Although males have been found associated with colonies in late summer, they are not present when the females are rearing a single young. They forage close to water and riparian vegetation, primarily on flies, moths, beetles, bugs, and other small flying insects.

They have a relatively limited distribution from the southwestern United States to central Mexico. In California, they are known from only a few localities along the Colorado River between Needles and Yuma (Map 3-6c Appendix A). The only maternity colony in California was located under a bridge near Blythe until 1945 when the bridge was demolished. It was the largest maternity colony ever known for this species. The species has not been seen in California since 1969. Occult little brown bats are probably extirpated from California, even though the species is the most common bat in the U.S.

In addition to destruction of its major roost site in California, the loss of riparian vegetation to agriculture and tamarisk along the Colorado River may also be a factor in the species' decline.

Occult little brown bat is a State Species of Special Concern.

Cave myotis (*Myotis velifer*)
Cave myotises are relatively large bats that occupy desert scrub, desert succulent shrub, microphyll woodland, and desert riparian habitats along the Colorado River (Map 3-6c Appendix A). They roost primarily in caves and mines but have also been found in buildings and under bridges.

Most historic records in California are from abandoned mines in the Riverside Mountains. The mines that once housed these large colonies no longer have them. Up to the 1950's, very large colonies were present in these mines from early April through August. Despite extensive survey work in the Planning Area over the past 25-30 years, there are currently only two known maternity roosts for cave myotis along the Colorado

River: one with approximately 300 animals, and the other about 200. A mine in the Cargo Muchacho Mountains and a mine in the Riverside Mountains have large deposits of cave myotis guano, but surveys in 1993 showed none and few bats, respectively, at these sites.

The loss of extensive native vegetation to agriculture and tamarisk along the Colorado River may explain the dramatic declines of this species in California. The use of pesticides in the agricultural areas could have reduced the prey base and/or poisoned the bats.

Cave myotis is a USFWS Species of Special Concern.

Fringed myotis (*Myotis thysanodes*)
Fringed myotises are widespread in much of the West. They occur irregularly throughout the State primarily in pinyon-juniper woodlands, coniferous forests, and oak woodlands, except in the Central Valley and the deserts, where it is known from only a few places. In the Planning Area, only two roosts in the Old Woman Mountains have been found; one of these is a significant maternity roost (Map 3-6d Appendix A).

Closure of mines could disturb the few desert sites known for the species. They are easily disturbed at roosting sites.

Fringed myotis has no special status.

Pallid bat (*Antrozous pallidus*)
Pallid bats are known from Cuba, Mexico, and throughout the southwestern and western United States (Map 3-6b Appendix A). Population trends are not well known, but there are indications of decline. Urbanization, destruction of old buildings, disturbance in caves and old mines, and eradication as a pest are threats to the species.

Pallid bat is a State Species of Special Concern.

Townsend's big-eared bat (*Plecotus townsendii*)
Townsend's big-eared bats are distributed throughout the western United States. Recent surveys show marked population declines for this species in many areas of California (Map 3-6b Appendix A). A combination of restrictive roost requirements and intolerance of roost disturbance or destruction has been primarily responsible for population declines of Townsend's big-eared bats in most areas. The tendency for this species to roost in highly visible clusters on open surfaces, near roost entrances, makes them highly vulnerable to disturbance. Roost loss in California has usually been linked directly to human activity (e.g., demolition, renewed mining, entrance closure, human-induced fire, renovation, or roost disturbance). The loss of foraging habitat is also a probable factor in declines of populations in along the Colorado River, where the native floodplain community has been lost to agriculture and tamarisk infestation.

Townsend's big-eared bat is a State Species of Special Concern.

Pocketed free-tailed bat (*Tadarida femorosaccus*)
Despite only a limited number of records, pocketed free-tailed bats are known to occur in the desert from March through August, when they then migrate out of the area. They have an uneven distribution in the southwestern United States and Mexico. In California, they are found primarily in creosote bush and chaparral habitats in proximity to granite boulders, cliffs, or rocky canyons. Recent observations in California show that this species occurs at only isolated locations in the southern third of the State (Map 3-6b

Appendix A).

Rockclimbing and pesticide spraying may be threats, but specific information is lacking.

Pallid bat is a State Species of Special Concern.

Western mastiff bat (*Eumops perotis*)
Historical records for the western mastiff bat were primarily in southern California between the Colorado River to the coast, but populations are now known to occur throughout the State (Map 3-6b Appendix A). Current population trends are not known. They are found in a variety of plant communities, but they roost in cliff faces of granite, sandstone, or basalt.

Potential threats to the roosting and foraging habitat of western mastiff bats include urban expansion, rockclimbing, blasting, vandalism, extermination for pest control, and pesticide spraying. These large, noisy bats are vulnerable to the hysteria which often surrounds bat colonies.

Western mastiff bat is a State Species of Special Concern.

Colorado Valley Woodrat (*Neotoma albigula venustra*)
The range of Colorado Valley woodrat is from southern Nevada, southeastern California, northeastern Baja California, to western Arizona (Map 3-6c Appendix A). Historically, the range of the Colorado Valley woodrat appears to have changed little, even though portions of the range are lost to agriculture and urban development.

Colorado Valley woodrats (California subspecies of White-throated woodrat) are found in a variety of habitats including low desert, pinyon-juniper woodlands, and desert-transition chaparral. Areas such as washes where organic debris gathers are particularly attractive. They are often found where prickly pear cactus and mesquite occur. In rocky areas, they prefer using crevices in boulders for cover and nest sites.

The most important threats are the loss of habitat and reduction in habitat quality by removal of nest material such as cactus and woodland. Habitat quality could be reduced by fires or conversion to exotic annuals.

The Colorado Valley woodrat is a State Species of Special Concern.

Mountain Plover (*Charadrius montanus*)
Mountain plovers do not breed in California, but they winter from northern California south to north-central Mexico and east to central Texas. In California they are found in the Central Valley, Antelope Valley, San Jacinto Valley, Imperial Valley, and Palo Verde Valley (Map 3-6d Appendix A). They begin to arrive on their wintering grounds in southern California in October. On their wintering grounds plovers forage for ground insects in loose flocks ranging from 2 to over 1,000 birds. Individuals change flocks and foraging areas frequently during the winter. Mountain plovers run or freeze from perceived harm rather than fly. Most individuals head northward between mid-February to mid-March. Migratory routes are unknown.

The Mountain Plover is proposed for Federal listing as a threatened species.

Golden eagle (*Aquila chrysaetos*)
Golden eagles are the largest raptor in the Planning Area. They forage over rolling foothills and valleys and nest on cliffs in mountainous terrain (Map 3-6e Appendix A). Golden Eagles are found throughout North

America. They are uncommon, permanent residents throughout the State, but they are most common in Southern California. In the NECO Planning Area only a few eyries are known.

Some golden eagles migrate through the NECO Planning Area in Spring and Fall. Some may winter in and near mountains. A few nest in the NECO Planning Area. Nests, referred to as eyries, are usually on secluded cliffs with overhanging ledges. The large platform of sticks at the eyrie may be used for many years. Usually two young are raised in late spring and early summer.

The major threat is disturbance at the eyrie, especially in the early stages of nesting.

Golden eagle is a State Species of Special Concern and is protected by the Bald Eagle Protection Act.

Ferruginous hawk (*Buteo regalis*)
Ferruginous hawks do not breed in California. They migrate from their breeding grounds in the plains of Canada and the U. S. south to wintering grounds in eastern Colorado and western Kansas to southern Texas. They winter in very low numbers throughout the West. They are known to migrate through California in September and April. They overwinter in very small numbers from mid-October to mid-March in the lower Colorado River Valley , Yuha Basin, West Mesa, and the agricultural areas of Imperial Valley (Map 3-6e Appendix A).

Ferruginous hawk is a State Species of Special Concern.

Prairie Falcon (*Falco mexicanus*)
Prairie falcons breed throughout the arid West from southern Canada to central Mexico. The overall distribution appears to be stable. In the 1970's 35 eyries were found within the California Desert District with approximately 12 in the Planning Area. It is unknown whether these eyries are currently occupied.

Prairie falcons are uncommon residents and migrants of open grassland, savannah, and desert scrub habitats. They are found in areas of the dry interior where cliffs provide secure nesting sites. In the desert they are found in all vegetation types, though sparse vegetation provides the best foraging habitat (Map 3-6d Appendix A).

Within the Planning Area it is not known to what extent they move seasonally, but wintering populations in the Planning Area are larger than breeding populations.

Historic impacts have included eggshell thinning from pesticide residues, conversion of habitat to agriculture, robbing of eyries by falconers, and shooting.

Prairie falcon is a State Species of Special Concern.

Elf owl (*Micrathene whitneyi*)
The elf owl breeding range extends from southwestern California east to Texas and south into Mexico. Historically, the elf owl was found along the lower Colorado River and at oases as far west as Cottonwood Springs in Joshua Tree National Park (1940-1970) and Corn Spring (latest in 1994) in the Chuckwalla Mountains. Currently, its California range is only along the Colorado River from just north of Needles to Imperial Dam. They are very rare in California and occur only in spring and summer along the Colorado River Valley (Map 3-6d Appendix A). Most of the suitable riparian habitat has been cleared for agriculture or lost to tamarisk since the mid-1970's.

The loss of mature, riparian habitat is the most important reason for this species' decline. Habitat loss has consisted of clearing and flooding for agriculture and water management and invasion by tamarisk. Frequent fires have also reduced suitable habitat and increased tamarisk.

The elf owl is State-listed as an endangered species.

Burrowing owl (*Speotyto cunicularia*)
Burrowing owls range from Texas west to California and from southern Canada south into Mexico. In northern climates they migrate south into the area in the winter. Burrowing owls were formerly common throughout much of California prior to the 1940's, but populations in central and southern California have declined in many areas due to agricultural development and urbanization. Little is know of the status of the burrowing owl in the California desert. Concentrations probably occur in agricultural drainage ditches of the Planning Area, just as they do throughout the Imperial and Coachella Valleys (Map 3-6e Appendix A).

Threats to burrowing owls are habitat conversion and destruction of ground squirrel burrows. Other threats may be accumulated pesticides, direct mortality from ground squirrel poisons, roadside shooting, and burrow destruction from canal and road maintenance.

The burrowing owl is a State Species of Special Concern and a USFWS Sensitive Species.

Gila woodpecker (*Melanerpes uropygialis*)
Gila woodpeckers range from the extreme southeast of California through Arizona south into western Mexico. They were formerly found along the entire lower Colorado River and in cottonwood groves in Imperial Valley. Now the species is found only at scattered locations along the Colorado River from Needles to Yuma, and they have disappeared in the Imperial Valley, except for a few pairs in Brawley. Within the Planning Area, Gila woodpeckers were known to occur in desert riparian washes (microphyll woodland) extending from the Colorado River as far as one mile away, but they are currently known only from scattered groups on the riparian corridor of the Colorado River (Map 3-6d Appendix A). They are more widespread in Arizona.

Major threats to Gila woodpecker are loss of habitat to agricultural development, urbanization, and tamarisk infestation and competition with European starling for nest sites.

The Gila woodpecker is State-listed as an Endangered Species.

Vermilion flycatcher (*Pyrocephalus rubinus*)
Vermilion flycatchers are small flycatchers with the male having a brilliant vermilion-colored front and head. They live in large riparian areas with a high canopy and grassland under-story. They are sometimes found in parks and golf courses that have this same structure.

Habitat loss is the primary reason for declines in California. Nest parasitism by cowbirds may be a factor, also.

Vermilion flycatcher is a State Species of Special Concern.

Willow flycatcher (*Empidonax traillii*) and Southwestern willow flycatcher (*Empidonax traillii extimis*)
Willow flycatchers are found throughout most of the U.S. The southwestern subspecies nests in southern California, Arizona, New Mexico, western Texas, and northwestern Mexico. Little is known about migration

or wintering in the NECO Planning Area.

Southwestern willow flycatchers have declined precipitously throughout the southwest. Major causes for decline are the loss of riparian habitat to urbanization, agriculture, and tamarisk infestation. On the breeding grounds, brood parasitism by cowbirds is common.

The Southwestern willow flycatcher is a federally Endangered Species, and the willow flycatcher is a State-listed Endangered Species.

Bendire's Thrasher (*Toxostoma bendirei*)
Bendire's thrashers arrive in the breeding area from late March to early April. Some leave the breeding grounds by the end of July with others departing through August. They migrate to southern Arizona, southwestern New Mexico, or Mexico for the winter. Wintering individuals have also been observed at the Salton Sea, coastal California, Bard, and Lancaster.

The largest breeding area in California lies just east of Essex from the south side of the Piute Mountains to the center of the Old Woman mountains. It is disjunct from another large breeding area near Cima Dome. The Essex population area lacks Joshua trees, but has dense stands of Mojave yucca and other succulents. There are a few records of Bendire's thrashers from JTNP in the Planning Area.

Bendire's thrasher is a State Species of Special Concern.

Crissal Thrasher (*Toxostoma crissale*)
Crissal thrashers occur from southwestern Utah, southern Nevada, and southeastern California east to southern New Mexico and southwestern Texas and south into Sonora. They are found along the Colorado River Valley, but elsewhere in California populations are highly local and uncommon (Map 3-6c Appendix A). Crissal thrashers are also found in Milpitas Wash, Indian Wash, and Chuckwalla Bench and in the Chuckwalla Dune Thicket. Inventory data elsewhere are scant. Agricultural and urban development have greatly reduced the distribution in the Coachella and Imperial Valleys.

Agricultural development, urbanization, and tamarisk invasion have greatly reduced numbers. The species is highly vulnerable to noise and other disturbances. Crissal thrashers can be parasitized by brown-headed cowbirds, but they will eject cowbird eggs from their nests.

Crissal thrasher is a State Species of Special Concern.

LeConte's Thrasher (*Toxostoma lecontei*)
Le Conte's thrashers are distributed from the Mojave Desert east into southern Utah and northern Arizona, and south into northern Mexico. A disjunct population occurred in the San Joaquin Valley, but most of that range has been lost to agricultural and urban development. Le Conte's thrashers are distributed throughout the Planning Area, but many areas with suitable habitat are unoccupied (Map 3-6c Appendix A).

LeConte's thrasher is a State Species of Special Concern.

Yellow warbler (*Dendroica petechia*)
Yellow warblers formerly nested in the Colorado River Valley, but they no longer breed there or elsewhere in the Planning Area. They migrate commonly through the Planning Area near the end of March through mid-April and again in September and October (Map 3-6c Appendix A). These migrants will stop at any size

woodland or oases. Regularly spaced woodlands and oasis with open water for drinking are essential for migrants. A few yellow warblers spend the winter in the Planning Area. Found throughout the U.S., populations in the West have experienced severe declines. For example, they have been totally extirpated from the California side of the Colorado River Valley.

Yellow warbler is a State Species of Special Concern.

Chuckwalla (*Sauromalus obesus*)
Chuckwallas occur throughout the Mojave and Colorado Deserts in California, Nevada, Utah, Arizona, and Mexico. They are found in appropriate habitat throughout the Planning Area (Map 3-6a Appendix A). Little is known about population size or trends. Primary threats to the species are from overcollecting and destruction of habitat by collectors.

The Chuckwalla has no special designations.

Colorado Desert fringe-toed lizard (*Uma notata*)
Colorado Desert fringe-toed lizards are found from northeast San Diego County southward through Imperial County, east to the Colorado River, and south into Baja California. Within the Planning Area they occur only in the extreme south adjacent to the Algodones Dunes (Map 3-6a Appendix A). Little is known about trends in population size or distribution.

Their sandy habitats are fragile and have been heavily impacted by off-road vehicles. Their diving-under-sand escape response makes them particularly vulnerable to injury from off-road vehicles. Potential indirect impacts on habitat are associated with the disruption of ecosystem processes involving sand sources, wind transport, and sand corridors.

Colorado Desert fringe-toed lizard is a State Species of Special Concern.

Mojave fringe-toed lizard (*Uma scoparia*)
Mojave fringe-toed lizards are found only in California and a small area of western Arizona, where they are restricted to dune habitats in the deserts of Los Angeles, Riverside, and San Bernardino Counties in California and La Paz County in Arizona. In the Planning Area they are known from the following areas: Bristol Dry Lake, Cadiz Dry Lake, Dale Dry Lake, Rice Valley, Pinto Basin, Palen Dry Lake, and Ford Dry Lake (Map 3-6a Appendix A).

Impacts are similar to those described for the Colorado Desert fringe-toed lizard.

Mojave fringe-toed lizard is a State Species of Special Concern.

Flat-tailed horned lizard (*Phrynosoma mcallii*)
Flat-tailed horned lizards occur throughout the southern portion of the Colorado Desert from the Coachella Valley southward and eastward into Arizona and south into neighboring Sonora. Large portions of the historic range have been lost to inundation of the Salton Sea, urbanization, and agricultural development. Within the Planning Area, suitable habitat occurs only along the southern edge (Map 3-6a Appendix A). The subpopulation that occurs in the Planning Area is not in any of five Management Areas designated as part of an overall strategy to conserve the species. Despite considerable effort over the past 15 years, population sizes and trends are unknown due to difficulties in finding an effective population estimation procedure.

The flat-tailed horned lizard is a BLM California Sensitive Species and a State Species of Special Concern.

Desert rosy boa (*Lichanura trivirgata*)
Although widely distributed, rosy boas are uncommon throughout their range. Desert rosy boas are found only in southeastern California and southeastern Arizona (Map 3-6e Appendix A). The most significant threats are from overcollection for the pet trade and the destruction of habitat by collectors.

Desert rosy boa has no special designation.

Desert tortoise (*Gopherus agassizii*)
Desert tortoises are widely distributed in the desert: from as far north as Olancha south to the Mexican border and from the Colorado River west to near Lancaster. The Desert Tortoise (Mojave Population) Recovery Plan shows two major populations or *recovery units* in the Planning Area. These are the Northern Colorado Desert and Eastern Colorado Desert Recovery Units. The highest densities of tortoises are in Chemehuevi and Ward Valleys, on Chuckwalla Bench, and in JTNP. The USFWS has designated *critical habitat* for the desert tortoise (Map 3-5 Appendix A). Populations have declined precipitously in some parts of the range, such as Chuckwalla Bench. Causes for declines include habitat loss, diseases, excessive predation on young tortoises by ravens, collecting, shooting, highway and vehicle kills, and other factors.

The desert tortoise is a Federal Threatened Species (Mojave Population only) and State-listed Threatened Species.

Couch's spadefoot toad (*Scaphiopus couchi*)
The range of Couch's spadefoot extends from extreme southeastern California eastward through Arizona, New Mexico, Texas, and Oklahoma and southward into Mexico. In California, they occur in the Planning Area from Chemehuevi Wash south to the Ogilby area in Imperial County (Map 3-6a Appendix A).

The population size is unknown. This species is of concern because 1) it has a small range in California; 2) populations are declining in other states; 3) it has a precarious life history; and 4) the capability of sites to impound runoff is easily destroyed. Road construction has created some pond habitat in Imperial County, but these are often subject to off-highway vehicle driving which can destroy soil impoundment capability. In addition to habitat disturbance, vehicles create noise similar to rainfall, resulting in emergence when conditions are not favorable. Vehicles may also crush vegetative debris which is essential as daytime cover.

The Couch's spadefoot toad is a State Species of Special Concern.

3.4.2 Special Status Plants

The Planning contains 32 special status plant species, one of which is Federally listed as endangered. All of these plants have Federal or State designations: threatened, candidate, or sensitive. Table 3-5 names these plants and describes a little abut the habitats in which they are found. The known or predicted ranges of these plants are shown on Maps 3-7a through 3-7d Appendix A.

Table 3-5 Special Status Plant Species

Scientific name **Common name** **Family** **CNPS List /Fed. Or State Status [1]**	**Brief description and known locations (note that a single record can include several individual plants). Plant communities are from Holland (1986) and Sawyer and Keeler-Wolf (1995).**
Acleisanthes longiflora Angel trumpet NYCTAGINACEAE 2/ none	A perennial herb associated with Sonoran Desert Scrub (Brittlebush Series). Found in mountanous areas on rocky, carbonate/limestone soils. It is common elsewhere but rare in California. There is one record just outside the Plan boundary NE of Blythe.
Astragalus insularis var. harwoodii Harwood's rattleweed FABACEAE 2/ none	An annual herb associated mainly with Sonoran Desert Scrub (Desert Sand-verbena Series) and distributed throughout the Colorado desert.. Little is known about its habitat preference or distribution within California. We have six records for this plan, scattered throughout the southern 2/3's of the Plan Area.
Astragalus lentiginosus var. Borreganus Borrego Milkvetch FABACEAE 4/ none	An annual herb that prefers fine sandy soils associated with Sonoran Desert Scrub (Desert Sand-verbena Series) and Dunes. We have four known locations within the Plan area, all in the Cadiz Valley/Iron Mountains/Danby Dry Lake region.
Astragalus lentiginosus var. Coachellae Coachella Valley milkvetch FABACEAE 1B/ FE and BLM Sensitive	A winter annual or short-lived perennial associated with low-elevation Sonoran Desert Scrub (Desert Sand-verbena Series). It prefers the fine sandy soils of dunes and sandfields. This is an aeolian endemic with fewer than 25 occurences in the Coachella Valley and four recent records in the Chuckwalla Valley. Natural disturbance from fluvial or aeolian processes are apparently necessary for seedling establishment. Blooming peroid is from February to May. In the Coachella Valley, heavy vehicle use can destroy plants and development can result in loss of habitat or disruption of natural processes. The sites in Chuckwalla Valley may also be subject to vehicle use.
Bouteloua trifida Red grama POACEAE 2 / none	A tufted perrennial grass found at higher elevations and associated with Mojavean Pinyon and Juniper Woodland (Singleleaf Pinyon Series, Utah Juniper Series). It is found in mountanous areas on rocky, carbonate/limestone soils and in crevices. It is common elsewhere but rare in California. We have one record from the Whipple Mtns. and one from the Turtle Mtns.
Calliandra eriophylla Fairyduster FABACEAE 2 / none	A deciduous, perennial shrub of Desert Dry Wash Woodlands (Blue Palo Verde-Ironwood-Smoketree Series), this plant prefers the sandy, rocky soils of washes, gullies and mesas. It is a species of the Sonoran desert and ranges into Arizona and Mexico. We have 21 records for this species, all from Imperial Co.
Carnegiea gigantea Saguaro CACTACEAE 2 / none	A large succulent shrub of Sonoran Desert Scrub (Foothill Palo Verde-Saguaro Series) and a signature species of the Sonoran Desert. It prefers rocky soils or gravelly slopes and flats on mountains and bajadas. We have 13 records, all from within 15 miles of the Colorado River.
Castela emoryi Crucifixion thorn SIMAROUBACEAE 2 / none	A deciduous shrub of Sonoran Desert Scrub and Mojave Desert Scrub (Crucifixion Thorn Series, Mesquite Series). It prefers fine, slightly alkaline or gravelly soils along playa margins. It is found in locally restricted sites in the southern Mojave and Sonoran deserts. We have 13 records throughout the Plan area.

Scientific name **Common name** **Family** **CNPS List /Fed. Or State Status** [1]	**Brief description and known locations (note that a single record can include several individual plants). Plant communities are from Holland (1986) and Sawyer and Keeler-Wolf (1995).**
Colubrina californica Los Animas colubrina or snakebush RHAMNACEAE 2 / none	An evergreen shrub associated with Sonoran Desert Scrub (Creosote Bush Series) and Joshua Tree Woodland. It prefers dry canyons and sandy, gravelly soils. We have 27 records, mostly around the Chocolate Mtns.
Condalia globosa pubescens Spiny abrojo RHAMNACEAE 4 / none	A deciduous, spreading shrub of Sonoran Desert Scrub (Creosote Bush Series). It prefers sandy gravelly soils in low-elevation canyons and ravines. We have 47 records from the Chuckwalla Bench through the Chocolate Mtns.
Coryphantha alversonii Foxtail cactus CACTACEAE 4 / none	(formerly *Escobaria vivipera var. alversonii*). A low-lying cactus associated with Sonoran and Mojave Desert Scrub (Creosote Bush Series). This plant prefers rocky soils on hills, mountains, and bajadas. We have 32 records in NECO, mainly in a swath across the middle of the Plan Area.
Croton wigginsii Wiggins' croton EUPHORBIACEAE 2 / SR	A perennial shrub associated with Sonoran Desert Scrub (Desert Sand-verbena Series) and Desert Dunes. It prefers the fine sandy soils of dunes and sandfields. It is endemic to the Algodones Dunes. There are three records for this species, all to the west of the NECO boundary
Cryptantha holoptera Winged cryptantha BORAGINACEAE 4 / none	An annual herbaceous plant of Sonoran and Mojave Desert Scrub (Creosote Bush Series). It seems to prefer sandy and gravelly soils on hills and mountains. We do not have any records for this species in the NECO area.
Ditaxis clariana Glandular ditaxis EUPHORBIACEAE 2 / none	A perennial herb of low-elevation Sonoran Desert Scrub (Creosote Bush Series, Desert Sand-verbena Series), this plant seems to prefer rocky, gravelly soils on hills and along washes. Its distribution is poorly understood. We have four points for this species, scattered throughout the Plan Area.
Ditaxis serrata var. californica California ditaxis EUPHORBIACEAE 3 / none	(previously *Ditaxis californica*). This perennial herbaceous plant is associated mainly with Sonoran Desert Scrub (Brittlebush Series, Creosote Bush Series, White Bursage Series) and Desert Dry Wash Woodlands. It prefers the rocky, gravelly soils of washes, mountains, hills, and canyons. Like *D. clariana*, its distribution is poorly understood. We have 17 records, located inside or to the south of JTNP.
Echinocereus engelmanii var. howei Howe's hedgehog cactus CACTACEAE 1b / BLM Sens.	A low-lying succulent shrub associated with Sonoran Desert Scrub and Mojave Desert Scrub (Creosote Bush Series). Little is known about the range or habitat preferences of this subspecies, primarily because of identifications problems with closely related taxa. There are three confirmed records just outside the northern NECO boundary.
Koeberlinia spinosa ssp. tenuispina Crown-of-thorns KOERBERLINIACEAE 2 / none	A deciduous shrub associated with Sonoran Desert Scrub and Desert Dry Wash Woodland (Blue Palo Verde-Ironwood-Smoketree Series). This species is found in rocky or gravelly soils in washes and ravines. We have 10 records for this species, all south of I-10 and most in the Chocolate Mtns. inside CMAGR.

Scientific name **Common name** **Family** **CNPS List /Fed. Or State Status**[1]	**Brief description and known locations (note that a single record can include several individual plants). Plant communities are from Holland (1986) and Sawyer and Keeler-Wolf (1995).**
Matelea parvifolia Spearleaf ASCLEPIADACEAE 2 / none	This plant is a perennial herb of Sonoran and Mojave Desert Scrub (Creosote Bush Series). It is associated with gravelly, rocky soils in hills and mountains. We have four records in the Plan Area: one near Cottonwood Springs (JTNP), two on the Chuckwalla Bench, and one in the Orocopia Mtns.
Monardella robisonii Robison's monardella LAMIACEAE 1b / BLM Sens	This plant is a perennial herb found only in and around the Little San Bernardino Mountains associated with Sonoran Desert Scrub and Mojavean Pinyon/Juniper Woodland. Questions about its status as a species seperate from another Monardella in the area have been raised, but not enough is known enough about the species to resolve the issue. It is found in gravelly, rocky soils. We have one record for this species in the Sheephole Pass area.
Opuntia munzii Munz' cholla CACTACEAE 1b / BLM Sens.	A cactus associated with Sonoran Desert Scrub (Unknown Series). This species is actually a stabilized hybrid and prefers sandy gravelly soils along washes canyon walls. The Chuckwalla Bench is the northern edge of the species range. WE have 45 records for this species, mostly within CMAGR.
Opuntia wigginsii Wiggins' cholla CACTACEAE 3 / none	An upright cactus associated with Sonoran Desert Scrub (Unknown Series). It seems to prefer low-elevation flats and sandy, gravelly soils. We have only one record for this species, in the Palo Verde Valley.
Palafoxia arida var. gigantea Giant Spanish-needle ASTERACEAE 1b / BLM Sens.	This is an annual or perennial herb associated with Sonoran Desert Scrub and Desert Dunes (Desert Sand-verbena Series). It requires fine, sandy soils and its distribution is restricted to the Algodones Dunes area. There are six records for this plant, one of which lies inside the NECO boundary.
Penstemon albomarginatus White-margined beardtongue SCROPHULARIACEAE 1b / BLM Sens.	An herbaceous perennial associated with Mojave Desert Scrub and Desert Dunes (Desert Sand-verbena Series). It requires stabilized, deep sandy and slightly alkiline soils. It California it occurs only in a four-mile long wash that crosses I-40. We have one record for this species in NECO.
Pholisma sonorae Sand food LENNOACEAE 1b / BLM Sens	A parasitic perennial herb assocaited exclusively with Desert Dunes (Desert Sand-verbena Series). This plant requires fine, sandy soils and is restricted to the Algodones Dunes. There is one record for this species, outside and to the west of the NECO boundary.
Pholistoma auritum var. arizonicum Arizona pholistoma HYDROPHYLLACEAE 2 / none	A succulent annual herb associated with Sonoran Desert Scrub (Creosote Bush Series). This plant prefers gravelly soils and mountains. In California it is found only in the Whipple Mtns., where we have one record.
Physalis lobata Lobed ground-cherry SOLANACEAE 2 / none	An herbaceous perennial associated with Sonoran and Mojave Desert Scrub (Series Unknown). It is found along playa margins or where ponding occurs in washes on granitic soils. The southern edge of its range occurs in the NECO Plan Area, where we have two records in the Sheephole Pass area, one just outside the NECO boundary in the same area, and one record in Ward Valley.
Proboscidea althaeifolia Desert unicorn plant MARTYNIACEAE 4 / none	A spreading, perennial herb associated with and Sonoran Desert Scrub (Creosote Bush Series). It is primarily found in sandy soils along washes. We have 13 records in NECO, in MIlpitas Wash, and the Chuckwalla and Chemehuevi Valleys.

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Scientific name **Common name** **Family** **CNPS List /Fed. Or State Status**[1]	**Brief description and known locations (note that a single record can include several individual plants). Plant communities are from Holland (1986) and Sawyer and Keeler-Wolf (1995).**
Salvia greatae Orocopia sage LAMIACEAE 1b / BLM Sens.	An evergreen shrub associated with Sonoran Desert Scrub and Desert Dry Wash Woodland (Creosote Bush Series, Blue Palo Verde-Ironwood-Smoketree Series). This species prefers sandy gravelly soils and is found along dry washes, alluvial slopes and fans. It is known only from the Orocopia Mtns., where we have 26 records.
Senna covesii Coves' cassia FABACEAE 2 / none	A low, perennial herb assocaited with Sonoran Desert Scrub (Series Unknown). It is found along dry washes and slopes and prefers sandy soils. Its distribution is poorly understood. We have three records in the Chuckwalla Mtns. and one record in the Whipple Mtns.
Stylocline sonorensis Mesquite nest straw ASTERACEAE 1a / none	A low-lying herbaceous annual of Sonoran Desert Scrub (Series Unknown). It prefers sandy soils in open washes and dry slopes. It has not been seen since 1930 in California and is possibly extirpated from the state, although it has a disjunct distribution in other desert states. The 1930 record was from Hayfield Dry Lake.
Wislizenia refracta ssp. palmeri Jackass clover CAPPARACEAE 2 / none	An erect annual associated with low-elevation Desert Chenopod Scrub, Sonoran Desert Scrub, and Desert Dunes (Allscale Series, Bush Seepweed Series, Desert Sand-verbena Series). It prefers sandy, alkaline soils along playas or in sandy flats. It is toxic but seldom eaten and valued as a honey plant. All eight NECO records for this species are in the Palen Dry Lake and Dunes area
Xylorhiza cognata Mecca-aster ASTERACEAE 1b / BLM Sens.	A perennial shrub associated with Sonoran Desert Scrub (Creosote Bush Series). Rare and found only in Riverside CO. this species prefers low-elevation dry canyons and gypsum, clay soils. We have seven records for this species, all from the Mecca Hills.

[1] Sensitivity classifications developed by the California Native Plant Society (and Pavlik, 1994) and Federal or State status. The codes are described as follows:
CNPS 1a = Extinct
CNPS 1b = Rare in California and elsewhere
CNPS 2 = Rare in California but common elsewhere
CNPS 3 = Review list (need more information)
CNPS 4 = Watch list (plants of limited distribution)
FE = Federal Endangered
BLM Sens. = BLM Sensitive, includes all CNPS 1b plants, CNPS 2 plants that are locally threatened or in unusual populations, plants that are newly described and likely to be listed as CNPS 1b, or other compelling criteria.
SR = State Rare

3.4.3 Natural Communities

The natural communities found in the Planning Area are subdivisions of two major desert floras: the Sonoran and the Mojave. In geologic terms, both regions are relatively young. Evidence from ancient woodrat middens reveal that the entire California desert was dominated by pinyon-juniper woodlands as recently as 9,000 years ago (Axelrod 1995). During the late Pliocene and Quaternary, the Mojave ecosystem gradually lost more dry-adapted species, while the Sonoran ecosystem continued to add new species as a result of fluctuating glacial-pluvial climates and localized mountain building during the Quaternary (Axelrod 1995).

Invasion of exotic plants have degraded most natural communities in the southwestern U.S. Common species include tamarisk (*Tamarix* sp.), Mediterranean splitgrass (*Schismus barbatus*), red brome (*Bromus madritensis rubens*), storksbill (*Erodium* sp.), Tournefort's mustard (*Brassica tournefortii*), and others. In the Planning Area tamarisk occurs as scattered plants in Desert Wash Woodland, Playas, and Seeps and Springs communities. Tamarisk trees can lower water tables or soil moisture sufficiently to eliminate native riparian vegetation around Seeps and Springs.

Exotic grasses, such as Mediterranean splitgrass and red brome, form a complete ground cover in some places, where they have displaced native annual and perennial grasses and forbs. There are indications that the increase in exotic annual grasses might be enhanced by nitrogen deposition from air pollution originating outside of the Planning Area (e.g., Los Angeles Basin, Coachella Valley) (Brooks 1998, Allen *et al.* 1997, Environmental Protection Agency 1996). There is some evidence that disturbances, such as livestock grazing, OHV use, and fire have contributed to the spread of exotic annuals (see Photos #4 and #6 Appendix Q) (Brooks 1998, Malo and Suarez 1995).

We have chosen to use the Holland vegetation classification system developed for The Resources Agency in the early 1980's (Holland 1986). The eight Holland community types mapped for the NECO Planning Area (Map 3-3 Appendix A), listed in decreasing order by acreage are: Sonoran Desert Scrub, Mojave Desert Scrub, Desert Dry Wash Woodland, Playas, Developed Areas, Sand Dunes, Desert Chenopod Scrub, and Pinyon and Juniper Woodland. Four of these, Desert Dry Wash Woodland, Playas, Sand Dunes and Desert Chenopod Scrub, are considered sensitive.

Sonoran Desert Scrub

Sonoran Creosote Bush Scrub is characterized by widely spaced shrubs, 0.5 to 3 yards tall on well-drained secondary soils of slopes, fans and valleys. The growing season is from winter to early spring, with a flowering period for ephemerals in late February to March, depending on rainfall. It is the dominant plant community below 3000 ft. throughout the Colorado desert, occurring from the Little San Bernardino Mountains south and east into Baja California (see photos #3 and #4 Appendix Q).

Sonoran Desert Mixed Scrub, another type of Sonoran Desert Scrub, includes members of the cactus and agave families and is generally found above 1000ft on rocky, well-drained slopes and bajadas. Succulent scrub areas typically have higher floristic and structural diversity than surrounding areas, which attracts more wildlife.

Sonoran Desert Scrub is the dominant community type within the NECO Planning Area, covering 3.8 million acres, or 69% of the total area. The large majority of its distribution (86%) is on public lands. Major threats to this community type include fire, grazing, off-road vehicles, and invasions of alien species.

Mojave Desert Scrub

Mojave Desert Scrub can be found from Death Valley to the Little San Bernardino Mountains in California and east into southern Nevada and northwestern Arizona. Mojave Desert Scrub typically occurs on well-drained, non-alkaline soils of desert flats, bajadas and slopes, and is generally not found above 4,000-5,000 ft. Mojave Desert Scrub is similar in appearance to Sonoran Desert Scrub, but generally occurs in places of lower winter temperatures and with a correspondingly later growth and flowering season (e.g., March to April for the ephemerals). Like Sonoran Desert Scrub, there are two distinct annual floras for the winter and summer seasons (see photos #1 and #2 on the cover).

Another subtype of Mojave Desert Scrub in the Palen area, Mojave Mixed Scrub and Steppe, occurs on

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shallow granitic or sandy soils on slopes between 2000 and 5000 ft. A third subtype, Mojave Wash Scrub, occurs in some washes.

Mojave Desert Scrub covers approximately 14.5% (nearly 800,000 acres) of the NECO Planning Area. Seventy-one percent of its distribution occurs on public lands, and 49% occurs within BLM or NPS wilderness. Threats to this community are similar to those for Sonoran Desert Scrub.

Desert Dry Wash Woodland

Desert Dry Wash Woodland, also called microphyll woodland, consists of drought-deciduous, small-leaved ("microphyllous"), mostly leguminous trees of riparian or wash areas. The trees can reach 30 feet or more in height, but typically do not exceed 15 ft. Some assemblages are very dense woodlands, while others are more open and dispersed. This community is typically found in sandy or gravelly washes or adjacent baguets under 2500 ft in elevation throughout the Mojave and Colorado Deserts (see photos # 5 and #6 Appendix Q).

Large expanses of Desert Dry Wash Woodland can be found east of Algodones Dunes, Milpitas Wash, within CMAGR, McCoy Wash, and at the east end of Chuckwalla Bench. Desert Dry Wash Woodland becomes less common and constricted to long, narrow strips in the northern half of the Planning Area. Overall, the Desert Dry Wash Woodland community covers approximately 675,000 acres (12.3%) of the Planning Area. Seventy-nine percent of its mapped distribution lies within public lands, including 20% within CMAGR. This plant community is considered sensitive by the state Resources Agency. Wildlife species richness is much higher in this than other community types in the desert and this community is slow to recover from disturbance. Threats include invasive exotics (particularly *Tamarix*), impacts related to heavy recreational use, and altered water flows.

Playas

Each closed basin in the California desert contains a playa, or dry lake bed. This community occurs at lower elevations at the edges or interior of ancient lakebeds, or where groundwater is close to the surface and heavily mineralized. Plants in this type of environment tend to be low, microphyllous species which exhibit varying degrees of succulence, and are able to tolerate salts and periodic flooding. Chenopod Scrub is always associated with playas, but not all playas support chenopod scrub, which is mapped as a separate community (see below) (see photo #7 Appendix Q).

There are six major dry lake beds totaling 8700 acres (1.6% of the Planning Area), 73% of which is on public lands. Each lake has a different character and use. Danby Dry Lake has a "puffy" surface composed of clay and salt mixtures, while Bristol Lake has a layer of saline water below a thin clay surface. Small mineral and salt mining operations operate at Bristol, Cadiz and Danby Lakes. Although relatively barren, playas are a unique habitat that is considered sensitive by the State Resources Agency. Playas provide habitat for rare and endimic (i.e., found only at that place) invertebrates such as fairy shrimp. They are resistant to change from small impacts but their flora and fauna may be affected greatly by heavy impacts. Plants and animals reside mostly in a thin layer at the surface.

Sand Dunes

Most of the mapped "dunes" are Stabilized or Partially Stabilized Desert Dunes, where sand accumulates and becomes somewhat anchored by plants (shrubs, annuals and grasses). Pockets of microphyll woodland and chenopod scrub vegetation are often found within dunes as well (see photo #8 Appendix Q).

Also included in the Planning Area is one area of Active Desert Dunes and several areas of Desert Sand

Fields. Active dunes are barren expanses of actively moving sand. The size and shape of these dunes are primarily determined by abiotic factors (see "Ecological Processes"). Vegetation, where it occurs, consists of low to medium shrubs and seasonal annuals. Sand Fields are areas where sand accumulates in non-dune forms. They are typically found along the toe of bajada slopes throughout the California desert. Vegetation structure is similar to adjacent creosote scrub areas on less-sandy soils.

Large tracts of dunes can be found in Cadiz, Ward, Rice and Chuckwalla Valleys, usually adjacent to playas. In these areas, the westerly winds tend to form dune deposits on the eastern side of valleys. A small portion of the Algodones Dunes, the largest Active Desert Dune system in California, lies within the southwest corner of the Planning Area. A total of 62,000 acres (1.1%) of dune and sandfield habitat is mapped in the NECO Planning Area, mostly on public lands (82%).

Sand dunes provide habitat for rare and endemic (i.e., found only at that place) animals, especially invertebrates.

Sand dunes are slow to recover if the scant vegetative cover is disturbed. Soils are highly susceptible to wind movement if the crust of heavier particles is disturbed (Carpelan**).

Desert Chenopod Scrub

This community consists of areas of low, sparse, microphyllic shrubs growing in or around dry lake beds. Soils of these areas are highly alkaline, fine-grained, and poorly drained, resulting in salt crusts and occasional pools of standing water. They are found at low elevations scattered throughout the Mojave and Sonoran deserts (see photo #9 Appendix Q).

This community type is rare within the Planning Area, covering only 2000 acres (<0.1%). Most of this (71%) is on private lands.

Mojavean Pinyon and Juniper Woodland

This community is an open woodland of low, bushy trees, with typically no more than 50% cover of tree species. The understory is typically more developed in this type than in other Pinyon-Juniper woodlands. Pinyon-Juniper woodlands are generally found on rocky, well-drained soils on dry slopes between 4000 and 8000 ft in elevation. They grow best in areas of cool winter temperatures and precipitation of 12-18 in/year (see photo #10 Appendix Q).

There are only 2,000 acres of Pinyon-Juniper woodlands within the Planning Area, all in the Old Woman mountains. Eighty-eight percent lies within public lands, and nearly all (98%) is in BLM Wilderness.

Springs and Seeps

Springs and Seeps are scattered throughout the NECO Planning Area. Most are found in or at the perimeter of mountain ranges. If the water flow is sufficient, there may be a small stream of flowing water or even a basin of water. For many others, the flow is only sufficient to saturate the soil in the vicinity. Most sites are only a few feet in diameter, very few may be as much as a thousand square feet in size (see photo #11 and #12 Appendix Q).

Some Springs and Seeps have been improved to impound water for drinking by wildlife, cattle, or they have been fenced to prevent damage by burros or cattle. Artificial water sources, generally constructed for wildlife or cattle (e.g., guzzlers and windmills), may have soil, flora, and fauna similar to natural Springs and Seeps. Natural water catchments of rock in canyons, called tenajas, are not included in this community because of the absence of associated vegetation. Vegetation at Springs and Seeps are widely varied, but generally have some wetland or riparian species.

Springs and Seeps are especially critical to migratory birds for resting, feeding, and drinking. Resident birds, such as pyrrhuloxia, Gambel's quail, and mourning doves, depend upon these scattered waters or the vegetation present there. Resident mammals, especially bighorn sheep and deer, are dependent on drinking water at these sites. Other species, such as rosy boa, are found primarily near water, but their dependence is uncertain. Some Springs and Seeps have endemic (i.e., species found only at that site) aquatic snails. They are easily altered by numerous human and animal activities that focus around water. Recovery of riparian vegetation, if any, may be rapid where water flow is sufficient. Species diversity is high, especially during bird migration.

Desert Washes

Except in sand dunes and playa plant communities, nearly all other plant communities are characterized by a pattern of braided washes made up of patterns of channels where water tends to focus, join and rush to terminuses at playas, sand dunes or the Colorado River. Washes may be a few inches to several hundred yards wide. They are generally dry on the surface (to possibly deep levels) for long periods of time - even years, and then for short periods (a few hours or days), with rare episodes of rain, they carry small to enormous amounts of water and sediment and then dry out again. In their upper reaches washes may appear and be functionally little different from adjacent communities. The greater the amount of water carried and frequency of rains, the more washes constitute special features of habitat, exhibiting different and diverse characteristics of channel, vegetation (cover, food, canopy layers, rearing of young, rare plants and animals), and wildlife (i.e., sport higher biodiversity) (see photos #2, #5 and #6 Appendix Q).

Developed

The "Developed" community type includes Holland's Agriculture and Urban areas. Urban habitats typically include a mix of native and cultivated species, a mix of structural forms (trees, lawns, etc.), artificial water sources, and a mosaic of edges and patch types (see photo #13).

Developed lands constitute a total of 1.4% (75,000 acres) of the NECO Planning Area. They include the agricultural areas in the Palo Verde Valley, around Desert Center, and in Cadiz Valley, the populated areas around Blythe and Needles, the smaller settlements, and two small airstrips. The majority (97%) is in private ownership.

3.6 Wilderness

The Wilderness Act of 1964 provides for the establishment of a National Wilderness Preservation System with areas to be designated from public lands within the National Forests, the National Parks, and the National Wildlife Refuges. Public lands administered by the BLM are inventoried and evaluated for wilderness potential in accordance with the Federal Land Policy and Management Act of 1976 (FLPMA). In the CDCA, 137 areas covering 5.7 million acres were determined to have wilderness characteristics; these areas were designated Wilderness Study Areas (WSAs) in May 1978.

Following the identification of WSAs, consideration was given to all resource values and opportunities, and a determination of "highest and best use(s)" for each WSA was made. This analysis led to preliminary recommendations for each WSA as suitable or non-suitable for wilderness designation by Congress. Subsequent amendments to the CDCA Plan revised the suitability determinations for certain WSAs, or portions thereof.

The CDCA Plan, as amended, established goals for wilderness management (Amendment Six, January 15, 1987):

1. Until Congressional release or designation as wilderness, provide protection of wilderness values so that those values are not degraded so far as to significantly constrain the recommendation with respect to an area's suitability or non-suitability for preservation as wilderness.
2. Provide a wilderness system possessing a variety of opportunities for primitive and unconfined types of recreation, involving a diversity of ecosystems and landforms, geographically distributed throughout the Desert.
3. Manage a wilderness system in an unimpaired state, preserving wilderness values and primitive recreation opportunities, while providing for acceptable use.

California Desert Protection Act (Public Law 103-433)
On October 31, 1994, Congress enacted the California Desert Protection Act (CDPA), thereby designating certain lands in the California desert as wilderness in furtherance of the purposes of the Wilderness Act and sections 601 and 603 of FLPMA. Of the 69 areas designated as BLM wilderness through the CDPA, 23 occur within the NECO Planning Area (Map 2-38 Appendix A):

Wilderness	BLM Field Office	Acres*
Bigelow Cholla Garden	Needles	15,947
Cadiz Dunes	Needles	21,298
Chemehuevi Mountains	Needles	84,902
Clipper Mountain	Needles	35,864
Old Woman Mountains	Needles	183,524
Piute Mountains	Needles	50,325
Sheephole Valley	Needles	195,244**
Stepladder Mountains	Needles	84,370
Trilobite	Needles	39,693
Turtle Mountains	Needles	182,676
Whipple Mountains	Needles	78,482
Big Maria Mountains	Palm Springs	46,164
Chuckwalla Mountains	Palm Springs	88,183
Little Chuckwalla Mountains	Palm Springs	28,708
Mecca Hills	Palm Springs	30,363
Orocopia Mountains	Palm Springs	54,683
Palen-McCoy	Palm Springs	224,419
Rice Valley	Palm Springs	43,422
Riverside Mountains	Palm Springs	24,186
Indian Pass	El Centro	32,967
Little Picacho	El Centro	35,853
Palo Verde Mountains	El Centro	30,999
Picacho Peak	El Centro	8,837
Total acreage		**1,621,109**

* Acres include Federal, State, and private lands within wilderness area boundaries. Acres are derived from maps produced through the Geographic Information System (GIS).
** Acres reported constitute the entire Sheephole Valley Wilderness, a portion of which occurs outside the NECO Planning Area.
The following provisions under Title 1, Sections 103 and 104 of the CDPA are particularly relevant to the NECO Plan:

- Subject to valid existing rights, each wilderness area shall be administered in accordance with the provisions of the Wilderness Act.
- Within wilderness areas, the grazing of livestock, where established prior to the date of enactment of the CDPA, shall be permitted to continue subject to such reasonable regulations, policies, and practices as deemed necessary, as long as such regulations, policies, and practices fully conform with and implement the intent of Congress regarding grazing in such areas as such intent is expressed in the Wilderness Act and section 101(f) of Public Law 101-628.
- The Congress does not intend for the designation of wilderness areas to lead to the creation of protective perimeters of buffer zones around any wilderness area. The fact that non-wilderness activities or uses can be seen or heard from areas within a wilderness area shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area.
- As provided in section 4(d)(7) of the Wilderness Act, nothing in the CDPA shall be construed as affecting the jurisdiction of the State of California with respect to wildlife and fish on the public lands.
- Management activities to maintain or restore fish and wildlife populations and the habitats to support such populations may be carried out within wilderness areas and shall include the use of motorized vehicles by the appropriate State agencies.
- Nothing in the CDPA may be construed to preclude Federal, State, and local law enforcement agencies from conducting law enforcement and border operations as permitted before the date of enactment of the CDPA, including the use of motorized vehicles and aircraft, on any lands designated as wilderness.
- All lands not designated wilderness in the NECO Planning Area are no longer subject to the requirements of section 603(c) of FLPMA pertaining to the management of WSAs.

Wildlife Water Developments in Wilderness
BLM Manual 8560 (04-27-83), *Management of Designated Wilderness Areas*, states the following:

> Although construction of facilities to enhance an area's value for wildlife or fish is not generally consistent with the free operation of natural processes, there are situations where such measures may be necessary for the continued existence or welfare of wildlife or fish living in wilderness. This is particularly true in the case of species adversely affected through human activities in and around such areas. Certain permanent installations to maintain conditions for wildlife and fish, upon consideration of their design, placement, duration, and use, may be permitted if the resulting change is compatible with preserving wilderness character and is consistent with wilderness management objectives for the area, and if the installations are the minimum necessary to accomplish the task. Permissible actions under these criteria may include: installations to protect sources of water on which native wildlife depend, such as exclosures; and water sources such as springs, wells, and

guzzlers.

Upon development of site-specific project plans for new artificial waters in wilderness, separate environmental review—including a "minimum tool analysis" which specifies the manner in which projects are to be completed—will be necessary. Guidelines furnished in BLM Handbook H-8560-1 (07-27-88), *Management of Designated Wilderness Areas*, include building new wildlife management structures in a manner that minimizes visual impacts on the landscape (see Appendix M). The array of existing artifical waters in wilderness areas is shown on Map 3-1 Appendix A.

Reintroduction of Native Species in Wilderness

In accordance with BLM Manual 8560, reintroduction of native species may be allowed:

> In some instances, wildlife species once native to the wilderness have been forced from their original habitat by encroachment of human beings and human activities. To the extent that these factors can be altered or managed within the intent of the Wilderness Act, native species no longer established in the wilderness area may be reintroduced and managed as a part of the wilderness resource. Care must be exercised to be certain that the species is native. Such programs are addressed in the wilderness management plan.

Guidelines furnished in BLM Handbook H-8560-1 indicate that motorized methods and temporary holding and handling facilities may be permitted if they are the minimum necessary to accomplish an approved transplant.

Research in Wilderness

Title 43 CFR 8560.4-5(a) states that gathering information about natural resources in wilderness may be allowed provided it is carried on in a manner compatible with the preservation of the wilderness environment. This provision is reiterated in BLM Manual 8560. The Manual further provides for research and scientific activities that use wilderness areas for study of natural environments and ecosystems. It requires that such research and collection of information be conducted in an unobtrusive manner by methods compatible with the preservation of the area's wilderness character. Research and other studies must be conducted without use of motorized equipment or construction of temporary or permanent structures, except when approved by the State Director for projects that are essential to managing the specific wilderness when no other feasible alternatives exist. Such use, when approved, must be the minimum necessary and must not degrade the area's wilderness character. Relative to structures and facilities proposed by other agencies conducting activities within BLM wilderness, such agencies are equally constrained by provisions of the Wilderness Act that are applicable to the BLM.

The CDCA Plan (1980), as amended, requires approval of the authorized officer for research activities conducted on public lands, including those within designated wilderness. Whenever required, all permits, authorizations, and/or licenses will be issued at the discretion of the authorized officer.

MOU and Policy on Wildlife Management Activities in BLM Administered Wilderness

On September 24, 1997, the BLM and California Department of Fish and Game (CDFG) entered into a Memorandum of Understanding to establish a framework for cooperation and procedures for CDFG maintenance, management, and research activities in BLM wilderness where motorized vehicle and equipment use is involved. Section 103(f) of the CDPA states:

> Management activities to maintain or restore fish and wildlife populations and the habitats

> to support such populations may be carried out within wilderness areas designated by this title and shall include the use of motorized vehicles by the appropriate State agencies.

Through the Memorandum of Understanding, both agencies agree to protect and preserve the wilderness character and values of the areas while carrying out CDFG's wildlife management mission.

3.6 Livestock Grazing

Background

Livestock grazing has occurred in the Planning Area for many decades. In general, cattle and sheep grazing use has declined since World War II (BLM, 1980), and grazing use within the Planning Area has declined since allocations for livestock use were made in the *California Desert Conservation Area Plan*, 1980. After enactment of the Taylor Grazing Act of 1934, "open" range grazing use became restricted to geographical areas allotted to one or more livestock producers based on historical or current grazing use. Until publication of a grazing rule on December 7, 1968, the BLM allocated long-term grazing use based on perennial forage production. However, there were many areas of the Southwest, including the Planning Area, that did not produce perennial forage and grazing use was based on consumption of annual grasses and forbs or ephemeral production. This new rule authorized BLM field offices in Arizona, California, and Nevada to modify ill-suited perennial classified allotments from perennial designation to ephemeral or ephemeral/perennial designation.

This administrative modification drastically changed the way livestock producers requested authorization of grazing use on ephemeral rangelands. The change no longer required an annual application for perennial forage grazing use nor required substantial use of base property (privately controlled non-BLM grazing lands), and grazing use would be based on a reasonable potential for growth of annual plants. Those allotments with perennial forage have an established amount of annual grazing use, based on the quality of the perennial plants, stated in animal unit months (AUMs) for a defined period of grazing use. Perennial grazing use is typically authorized at the same level from year to year unless forage production does not meet seasonal norms. However, grazing use in allotments with ephemeral forage do not have an established level of use nor a period of use instead the amount of AUMs and the length of the grazing season are determined prior to authorized grazing use.

A typical ephemeral livestock operation requires two circumstances to be present before grazing use occurs. First, sufficient forage of annual grasses and forbs must be available, and secondly, the lessee must have livestock for turnout. Surprising as it may seem, these two conditions do not easily coincide because livestock producers during any year may have abundant numbers of livestock to graze forage on the allotment, but there could be insufficient feed and vice-versa. When weather conditions have been favorable and the livestock producer submits a written request for grazing use, the BLM reviews plant and soil conditions throughout the allotment in preparation for potential grazing use. This field review will determine the amount of available forage, potential grazing areas, and potential restrictions of grazing use.

Rangeland Improvements

Livestock facilities or range improvements are necessary for livestock to remain in an area to graze. Cattle can easily wonder throughout the allotment without supervision while sheep must be supervised. Very few or no facilities are needed to manage sheep because a herder or his sheep dogs direct sheep bands from one area of the allotment to another. Consequently, there are no range improvements for sheep management on *Ford Dry Lake* and *Rice Valley* Allotments. While *Chemehuevi* is a cattle allotment it has only one major improvement, this is due in large part to the limited needs of spring grazing use of ephemeral forage. *Lazy Daisy* Allotment has the largest number of improvements of the four allotments.

Sheep have a limited need for water while grazing upon succulent ephemeral vegetation, and can graze for weeks without drinking, but when the ephemeral plants become dry water must be supplied. Water is supplied by trucks and each truck carries light transportable troughs so they can be easily setup and removed. The truck will move as close to the band of sheep as possible and setup troughs. Water is supplied once a day, usually in the afternoon, and sheep may bed-down in warmer weather before returning to graze. Once the feed becomes dry or other feed becomes available elsewhere, the livestock producer transports the band(s) to other pastures outside of the area. Cattle's requirements for water are reduced when they consume succulent ephemeral forage. On the *Lazy Daisy* Allotment, cattle obtain water from undeveloped or developed springs or seeps, and wells. Wells and some springs supply water through pipe to troughs found at the higher elevations. Barbed wire fence is used to exclude cattle from grazing an area or to prevent movement beyond a certain area. *Lazy Daisy* Allotment is the only allotment with any appreciable amounts of fence. Sheep movement in *Rice Valley* and *Ford Dry Lake* Allotments is directed by a herder and fences are not needed. Corrals are used to sort, administer medicines, brand or mark animals, and ship animals to and from the area. Portable metal and wire corrals are used with sheep operations and permanent corrals are necessary with cattle operations.

Grazing Activities

The *Chemehuevi*, *Ford Dry Lake*, and *Rice Valley* Allotments are classified for ephemeral grazing use, and the *Lazy Daisy* Allotment is classified for ephemeral and perennial grazing use. The *Lazy Daisy* and the *Chemehuevi* Allotments are designated for cattle use, and they cover 332,886 and 137,321 acres, respectively. The *Ford Dry Lake* and *Rice Valley* Allotments are designated for sheep use, and they cover 49,682 and 85,565 acres, respectively. When there is a good year for ephemeral growth, about 11 percent of the Planning Area is grazed, however in normal to dry years about 6 percent is grazed.

BLM's grazing season or year starts on March 1 and concludes the last day of February of the following year. All grazing activities are to be carried out in conformance with the grazing regulations, standards for rangeland health, guidelines for grazing management, allotment management plans, and direction provided in the CDCA Plan. Current grazing activities in all four allotments are further constrained by mitigation measures listed in for desert tortoise and their habitat listed in biological opinions and summarized in Appendix C. Table 3-6 displays the area of desert tortoise critical habitat and BLM-Category I, II and III habitat within each allotment. Chemhuevi and *Lazy Daisy* Allotments are in the desert tortoise Northern Colorado Desert Recovery Unit. Map 2-5 Appendix A shows the location of these four areas.

Table 3-6 Amount of Grazing Leases in Tortoise Critical Habitat and BLM Tortoise Categories

Allotment Name	Acres in Critical Habitat (%)*	Acres in BLM Category I & II (%)*	Acres in BLM Category III
Chemehuevi	94,050 (10)	91,975 (12)	45,346
Ford Dry Lake	0	0	49,682
Lazy Daisy	250,834 (27)	228,579 (29)	104,307
Rice Valley	0	0	85,565
Total All Allotments	344,884 (37)	320,554 (40)	284,900

*% is relation to total amount of Critical Habitat and Category I & II.

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The *Lazy Daisy Allotment* occupies an area south of Highway 40, and east of Route 66 in the most northern portion of the Planning Area. The *Chemehuevi* Allotment is south of Needles, straddles Highway 95, and borders the eastern boundary of Planning Area. *The Ford Dry Lake* Allotment is situated immediately north of I-10 in the *Ford Dry Lake* area, west of the southern end of the McCoy Mountains, and south of the Palen Mountains. The *Rice Valley* Allotment is located south of the ruins of Rice along Highway 62 and straddles the Rice-Midland Road and the Arizona-California Railroad spur.

The *Lazy Daisy Allotment*, #CA-069-9076, has a potential use level of 3,192 AUMs of perennial forage for 266 head of cattle to graze from March 1 to February 28 (all-year-long). The current lessee has grazed cattle on the allotment since March of 1979. The total area of the allotment is 332,886 acres composed of 304,103 acres of BLM and 28,783 acres of State and private land. Refer to Table 3-7 for past grazing use.

Presently, utilization of perennial forage plants in the northern and southern portions of the allotment is constrained by the lack of water sources. There are places throughout the allotment that need fence constructed to maximize available water sources. Cattle are currently feeding in three major areas located in the central portion of the allotment; Paramount, Sunflower, and Tye Cabin. As daytime temperatures drop and cattle demand less water and/or there is an increase in ephemeral plants, most of the cattle that leave the central portion of the allotment tend to move east and south toward the flats, and graze as long as forage condition permit. The northeastern (Ward Valley) portion of the allotment is not normally used by cattle due to lack of perennial forage and the consistent lack of ephemeral feed. Cattle have direct access to I-40 at the overpass at Water Road and I-40 and historic Route 66, installation of a cattle guard is necessary to prevent cattle from wandering onto the freeway. Also, cattle are unable to make effective use of the northern and northwestern portion of the allotment due to a lack of one mile of fence at Mountain Springs overpass on I-40. Fenner and Barrel Springs are found in the northern portion of the allotment and need to be developed further.

When cattle graze into the eastern portion of the allotment, most cattle use occurs adjacent to Homer Wash south of the gas pipeline. The lessee indicates "chamise" brush and galleta are the primary forage species. In the southern portion, abundant feed in Nine Mile Canyon is utilized only during cooler and wetter periods of the year, the lack of a permanent water source in this canyon precludes prolonged grazing use. The ephemeral springs in the canyon cannot be trusted to provide water throughout the year. To avoid cattle deaths from thirst, cattle are removed from this area sometime during May or June, and depending on the weather, they are returned when water and forage conditions permit.

Water sources in the central portions of the allotment, especially the eastern side, are thoroughly developed. As southern water sources are developed, fencing the southeast quadrant of the allotment may be necessary, someday, to prevent cattle from drifting off the allotment, and toward the Colorado River. Moisture from winter storms tend to fall on the mountain tops, and summer rains fall primarily in the middle of the allotment (west of Pilot Peak), everywhere actually, except on top of Old Woman Mountain (pers. comm. M. Blair).

Scanlon Wash is a large canyon located on the west side of the allotment, and cattle have limited or no access to the wash due to a land ownership dispute. This dispute has complicated current and future grazing use of the wash and surrounding area. To make matters worse, about 20 head of cattle were shot during this recent period and the shooter has not been found.

Cattle are gathered, sorted, branded, medicines administered, and shipped each spring. Cattle are "worked" during the fall as need arises and cattle numbers dictate. Cattle are gathered at corral facilities located at Flat and Old Ranch, and corrals at the home place may be used if Weaver's Well becomes operational.

The *Chemehuevi* Allotment sometimes produces forage during late fall, winter, early spring, and sometimes after summer storms. The lessee indicated past cattle use ranged from 35 to 50 head for the allotment, and they would like to maintain that herd size if possible. Grazing use has not been authorized since 1989 grazing season primarily due to the lack of feed and an available herd. Refer to Table 3-7 for past grazing use. Cattle can reach most portions of the allotment, and during exceptionally wet years, cattle can wander west of highway 95. Cattle do not need to drink water as long as forage remains succulent. Cattle move and graze east to west until plant growth reaches it's maximum extent.

The Chemehuevi Wash drains approximately west to east through the center of the allotment. The wash is wide and flat, and is heavily used by OHV's at the lower end during cooler times of the year. Cattle use the wash to access side drainages that traverse the watershed in a general north and south direction. When there are conflicts with OHV's along Chemehuevi Wash, cattle will move to higher ground and to side drainages until noise and activities have subsided. The main water source for the allotment is West Well. This large open well can be found at the lower end of the Chemehuevi Wash about four miles west of the Colorado River. West Well is a hand dug well with an adjacent depression that allows cattle directly to the water source to drink. Camping by OHV visitors near the well is a potential problem that has been averted by a the availability of a superior campsite located several hundred yards downstream. A corral surrounds the well and can be used for handling and shipping cattle. This corral is the only facility built on the allotment to ship cattle to and from the allotment. The lessee stated that cattle are typically shipped to and from the allotment via small trailers and trucks (pers. comm. Michael Smith).

During the 1980's, cattle would leave the allotment when temperatures became excessive and graze areas at or near the Colorado River on Chemehuevi Indian Reservation or Havasu National Wildlife Refuge. The lessee recommended development of the existing Whipple Well, a water source near the southern boundary of the allotment and north of War Eagle Mine. A reliable water source in this area would provide better cattle distribution and access to the northern slope of the Whipple Mountains, and serve bighorn sheep too. Potential range improvements are limited due to the size and topography of the allotment and watershed.

Ford Dry Lake and *Rice Valley* Allotments are ephemeral allotments and only domesticsheep are allowed to graze in these units. The weather patterns for *Ford Dry Lake* and *Rice Valley* Allotments tend to produce forage from rainfall in January, February, and March, and with summer rains. Sheep are not in the general area of the allotments during late spring and summer. Livestock producers have bands of sheep "wintering" on private lands in nearby Palo Verde Valley and the Casa Grande, Arizona area, and if forage conditions are appropriate, sheep are moved to the allotments. Bands of sheep are transported by several livestock trucks to the allotment from nearby agricultural fields and unloaded in the allotment adjacent to a road. Once the band (usually 600-1,000 sheep) has been unloaded and collected in one area, herders allow the sheep to move and graze in a general area adjacent to their camp and sometimes may travel quite a distance from camp. The herder directs the movement of sheep with the assistance of sheep dogs. When forage is succulent, sheep do not need to drink water, therefore graze and walk a long distance from camp. In the evening, the band will stop and bed down, and around sunrise they will get up and start moving and grazing for the day. When the band grazes through an area the sheep tend to spread out looking for the tips of the growing plants to consume. When hotter weather arrives and the feed starts drying, sheep must be supplied water.

Grazing Administration

The BLM conducts a series of actions to authorize cattle and sheep grazing use. Depending on the type of lease, livestock producers apply to graze livestock annually or as conditions permit. Grazing use is permitted with written authorization, and terms and conditions for grazing use are listed as necessary. The BLM conducts field visits throughout the grazing period to ensure grazing use is occurring as authorized. Range improvements are inspected as prescribed to determine condition and future utility.

Vegetation and soil conditions are reviewed via rangeland health assessments and monitoring. All allotments have been assessed for health standards. Riparian/wetland vegetation along the Chemehuevi Wash in the Chemehuevi Allotment did not meet standards due to excessive grazing use from burros and infestation of tamarisk. It is anticipated that removal of burros from this area in the near future and institution of a tamarisk control program will quickly improve vegetative conditions. Otherwise resource conditions in the four allotments meet all standards. California BLM has made a concerted effort to categorized allotments into four areas based successful attainment of rangeland health standards (see Appendix B). This categorization process coupled with an existing categorization (Selective Management) strategy of allotments based on their potential to improve resource conditions with less funding (see Appendix B).

Monitoring of rangeland resources has changed over the last decade. In the past, it attempted to obtain general soil or vegetation information, but this vague information could not answer specific questions about subtle changes. Consequently, there was a natural split to collect general and specific resource information. Both types of information have their downside, and field specialists and management are in the uncomfortable position decide which method is superior in what situation. The qualitative assessment process could be an inexpensive way to approach monitoring with specific questions needing answers. Under the assessment process, monitoring efforts have narrowed to specific resource conditions in areas of allotments that do not meet standards.

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Table 3-7 Past Grazing Use

Grazing Year	AUMs Consumed	Grazing Period	Ave. Number of Cattle/Sheep
Chemehuevi Valley Allotment			
1989	15	10/1 - 10/31	15
Ford Dry Lake Allotment			
1972	600	12/1/72 - 2/28/73	1,000
1976	1,700	10/22/76 - 4/8/77	1,847
1977	2,708	9/1/77 - 6/5/78	1,472
1978	2,700	12/1/78 - 4/30/79	2,700
1979	200	10/1/79 - 11/30/79	500
1998	586	2/24/98 - 4/17/98	2,660
Lazy Daisy Allotment			
1990	1,200	3/1 - 2/28	100
1991	1,500	3/1 - 2/28	125
1992	1,500	3/1 - 2/28	125
1993	1,927	3/1 - 2/28	196
1994	1,500	3/1 - 2/28	125
1995	1,500	3/1 - 2/28	125
1996	1,275	3/1 - 2/28	113
1997	1,500	3/1 - 2/28	125
1998	1,500	3/1 - 2/28	125
Rice Valley Allotment			
1983	260	4/1 - 4/30	1,300
1992	441	3/22 - 4/27	2,200
1998	626	2/21 - 4/2	2,700

3.7 Wild Horse and Burro Management

Management of wild free-roaming horses and burros was authorized by Congress under the Act of December 15, 1971, (PL 92-195) 16 U.S.C. 1331-1340 (Act) as amended by The Federal Land Policy and Management Act of 1976 (PL 94-579) and The Public Rangelands Improvement Act of 1978 (PL 95-514). The regulations found at 43 CFR Part 4700 and the 4700 BLM Manual series, prescribe the authorities, objectives, and policies that guide the protection, management, control, and disposition of wild free-roaming horses and burros in accordance with the Act. Through the Act, Congress declared that: "It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found, as an integral part of the natural system of the public lands" and are to be managed "in a thriving natural ecological balance". The policy of the BLM is to manage wild horses and burros in a manner that will insure healthy herds for future generations of Americans and contribute to the diversity of life forms on public lands administered by the bureau. The Act does not apply to lands managed by the Department of Defense nor the National Park Service (although such management is not prohibited on those lands). In the NECO Planning Area neither JTNP nor CMAGR has ever managed herds of wild horses and burros, and it is not in the scope the NECO Plan that this change, even though burros do exist on CMAGR.

The areas where wild horses and burros were known to exist at the time of the passage of the Wild Horse and Burro Act for the California Desert District, managed by California BLM, and the narrow "strip" of California which lies alongside the Colorado River, which is managed by Arizona BLM, are addressed in separate land use plans: the 1980 California Desert Conservation Area (CDCA) Plan (see Wild Horse and Burro Management Area map no. 8), and in the Yuma District Resources Management Plan (RMP), both as amended and in separate herd management area plans (HMAPs)which provide more specific burro management guidance. However, program technical terminology used in both sets of planning documents are not all the same and are clarified as follows:

1. Wild Horse and Burro Range/Herd Area
   CDCA Plan: uses wild horse and burro range
   Yuma RMP: uses Herd Area (HA)

Both terms have the same meaning but the latter is in universal use today. Herd Areas are *areas of public lands identified as being habitat used by wild horses and burros at the time of the passage of the Act in 1971.*

2. Herd Management Area (HMA)
   CDCA Plan and the Yuma RMP are the same on this

Herd Management Areas are *areas designated in land use plans for long-term management of wild horse or burro herds.* In these areas wild horse and/or burro herds shall be managed as integral components of public land ecosystems as part of the basic BLM multiple use mandate. Management activities shall be conducted with the intent of maintaining the herds within the boundaries of the HMAs.

3. Retention Area
   Used in CDCA Plan, only

Retention Areas are mapped as areas within HMAs but are not defined and have no specific management prescriptions. This term is not in program usage today.

4. Concentration Area
   Mapped in the CDCA Plan, only

Concentration Areas are *areas where wild horse and burro herds tend to congregate and a high probability of encountering the herds is expected. These areas are typically located near water sources where herds would congregate, especially during the dry season. If populations are maintained at appropriate management levels in the concentration areas, more than adequate forage is expected to exist for that population throughout the remainder of the HMA.* While a useful management tool, Concentration Area is not an official designation.

5. Proposed Population/Appropriate Management Level (AML)
CDCA Plan: uses Proposed Population
Yuma RMP: uses Appropriate Management Level (AML)

Both terms have the same meaning but the latter is in universal use today. *AML is the optimum number of wild horses and burros which achieves a thriving ecological balance and avoids a deterioration of the range (109 IBLA 118 API 1989). AML shall be expressed as a single number which is the highpoint of acceptable upper and lower limits of the population range. The lower limit shall allow for a self-sustaining population. The upper limit must be consistent with objectives of maintaining a thriving ecological balance.*

Herd Areas

There are six HAs in the NECO Planning Area which are listed in Table 3-8 and displayed on Map 2-25 Appendix A. Four of these are covered in the CDCA Plan and two in the Yuma RMP. Five are for burro herds and one is a horse herd. Even though Arizona and California offices separately designated the Chemehuevi (California) and Havasu (Arizona) burro HAs, the same herd is common to both. The same situation exists with the Chocolate/Mule Mountain (California) and Cibola/Trigo (Arizona) burro HAs. So, ignoring the administration duplication, there are actually only three burro herds involved in the scope of this plan, the third being the Piute Mountain HA, located south of I-40 near Essex, California. The one horse HA, Picacho, overlaps part of the Chocolate/Mule Mountain burro HA in the CDCA and does not have a complementary Arizona BLM-administered HA.

Herd Management Areas (general)

All but one of the HAs described above were designated as HMAs in the respective BLM land use plans and the more specific herd area management plans which followed. Only Piute Mountain HA is not an HMA; therefore the target management number (AML) for that HA is zero. While Table 3-8 shows that there are currently 37 burros in the Piute Mountain HA, the intent (current management) is that there be none. Table 3-8 also shows the AMLs for the HMAs. Note that the AMLs for the Chemehuevi and Havasu HMAs are the same number (animals are the same herd and AML is not doubled), while the AMLs for the Chocolate/Mule Mountains and Cibola/ Trigo HMAs are not the same number and are added, even though the subject burros are of the same herd. HMAs for horses and burros are separate areas even though the Chocolate/Mule Mountains HA/HMA for burros and the Picacho HA/HMA for horses overlap. To the extent that wild horses and burros roam outside an HMA they are considered a nuisance and can be removed from the non-HMA area. It is the policy of BLM to manage and remove excess and nuisance animals through humane, live-capture means and place them in private maintenance through BLM's Adopt-a-Horse/Burro program.

Table 3-8 Herd Management Areas: nature, size, estimated population, appropriate management levels

Wild Horse and Burro Herd Management Areas	Size (acres)	Estimated population	Management Levels	Excess or (Deficit)
Piute Mountain (Burro) (Herd Area, only)	39,781	37	0	37
Chemehuevi (Burro)	406,894	133*	150*	(17)*
Chocolate/Mule Mtn. (Burro)	386,069	79	22	57
Picacho (Horse) (Burro)	45,928	0 45	42 0	(42) 45
Havasu (Burro)	78,952	133*	150*	(17)*
Cibola/Trigo (Burro)	36,530	160	190	(50)

* Two sets of numbers are common to both HMAs

Chemehuevi and Havasu HMAs

The Chemehuevi and Havasu HMAs, located in southeastern California along the Colorado River between Needles, CA and the Colorado River Indian Tribes (CRIT) tribal lands, provide habitat for wild free-roaming burros. The burros are under the jurisdiction of the Lake Havasu (Arizona) and Needles (California) BLM Field Offices. The burros also roam onto Federal land managed by the Havasu National Wildlife Refuge (NWR, managed by USFWS), Park Moabi (San Bernardino County), Metropolitan Water District land and facilities, and tribal lands belonging to Chemehuevi and Colorado River Indian Tribes.

Management of wild burros within these HMAs is guided by two herd management area plans (HMAPs), the Colorado River HMAP (California Desert District, 1984) and the Havasu HMAP (Lake Havasu Field Office, 1979). The management plans recognized that the same populations of burros utilize lands in each jurisdiction and called for coordination between the two BLM offices, however, very little coordination occurred prior to 1995. Neither plan has been fully implemented and currently (July, 2000) there is an estimated population of 133 burros.

Both BLM offices signed a Memorandum of Understanding with the Chemehuevi Indian Tribe allowing for joint burros management - i.e., that portions of the Chemehuevi tribal lands would be managed as part of the HMA. However, in 1995 the Chemehuevi Tribal Council rescinded the MOU and all entities are currently operating under a new cooperative agreement for burros removal on the Chemehuevi tribal lands.

The Havasu HMA includes the Havasu NWR, which as this time does not desire to remain a part of the HMA.

Chocolate/Mule Mountains, Picacho and Cibola/Trigo HMAs

The Chocolate/Mule Mountains and Cibola/Trigo HMAs provide habitat for wild free-roaming burros along the Colorado River in Imperial and Riverside Counties in California. These burros are under the jurisdiction of the Yuma, Arizona and El Centro, California BLM Field Offices. The burros also roam on Federal lands managed as the Imperial and Cibola NWRs, state lands managed by the State of California (Picacho State Recreation Area), and private land owners including irrigated farmland in the lower Palo Verde Valley.

Management of these HMAs is guided by two HMAPs, the Colorado River HMAP (California Desert District, 1984) and the Cibola-Trigo HMAP (Yuma District, 1980). Each land use plan set different AMLs for their respective jurisdictions at the same time that it was recognized that only one herd was involved. The AML for the Chocolate/Mule Mountains HMA is 22 burros and is 190 for the Cibola-Trigo HMA. The management plans also called for coordination between the two BLM offices, however, very little coordination occurred prior to 1995. Neither plan has been fully implemented. Currently there is an estimated 160 burros in the common herd. Wild horses which once roamed in the Picacho HMA appear to have left the HMA over 20 years ago and have not returned since. An AML of 42 horses was established in the 1980 CDCA Plan. The area is entirely within the CDCA but does lie against the CDCA boundary.

The Cibola-Trigo HMA includes the Imperial and Cibola NWRs. The intention was for BLM and USFWS to cooperate on managing burros over the greater area. However, in the last year USFWS has clearly indicated a desire to not have NWRs be a part of HMAs. The Cibola-Trigo HMA also includes the Picacho State Recreation Area which includes both state land and Federal BLM land leased to the state through the Recreation and Public Purposes (R&PP) Act. The leased lands fall under the definition of public lands in FLPMA and the Act and can be included in a designated HMA. The Yuma BLM Field Office has been working with the Superintendent of the Picacho State Recreation Area to remove nuisance animals from state-owned lands.

Several data and planning documents that predate the 1980 CDCA Plan indicate that the Chocolate/Mule Mountains burro HA developed in the CDCA Plan (Map 2-25 Appendix A) is incorrectly mapped and should be mapped as shown on Map 2-26 Appendix A (the total of two areas labeled "Current Burro HA" and "Additional Historic Burro Range"). These documents include the following:

1. 1974 Unit Resource Analysis (URA), developed by BLM's Yuma District.
2. 1992 draft Natural Resource Management Plan for CMAGR prepared by the University of California, Riverside depicts the distribution of burros in 1969.
3. 1967 map developed by Riverside Land Office (now the California Desert District Office).

The Picacho HMA is the only wild horse HMA in the planning unit. This HMA borders the Cibola/Trigo HMA and is adjacent to and within the Chocolate/Mule Mountain HMA. It is speculated the wild horses may have crossed the Colorado River to Arizona. Currently, the HMA has a population of wild burros.

Population Census

Burro census should be conducted every 3 years, in accordance with Bureau policy and dependant on funding. The methodology is always being evaluated for the most efficient, accurate and cost effective ways of conducting burro counts. The current population census method utilized by the CDD is direct counts. Arizona BLM has used count-recount in the past, but is currently testing the simultaneous double count method, which may be used in the future by the CDD. There has been an attempt to use infra-red census techniques, but this is still under evaluation.

Removal of Excess Burros

Burros are commonly removed from the range and placed in private maintenance through BLM's Adopt-a-Horse/Burro program. A decision to remove usually is made when either the number of animals exceeds the AML for an HMA or animals are present in a nuisance situation in areas outside HMAs. Removals are accomplished usually through one of two means: passive self trapping with food/water as bait or active cowboy/helicopter driving/roping methods. Both methods require periodic access, vehicles, and permanent or portable facilities.

Management Complexity

The burro management situation along the California side of the Colorado River is very complex:

1. In two instances a BLM office in two states have common management responsibilities for the same herd of burros by the nature of burros roaming both sides of administrative units. Coordination on management actions has been difficult.
2. Both burro herds also roam over a landscape of jurisdictional complexities. BLM's multiple use management mandate includes wild horses and burros. The mandates of the USFWS, State Department of Parks and Recreation, tribal lands, and private land owners do not, yet these lands comprise most of the area mapped as concentration areas; where forage and water are most abundant, including during the hottest time of the year. The number and different mandates also creates additional complexity for coordinated management actions.

Species Description

Burros *(Equus assinus)*.

Burros along the Colorado River are typically grey, with some being black brown, white pinto or piebald. Some posses the shoulder cross characteristic of the ancestral Nubian wild ass and many have leg barring associated with the Somali wild ass. The mean shoulder height of adult burros is 48 inches and the mean weight is approximately 350 pounds. Wild burros average life span is approximately 15-20 years in the wild.

Wild Burros Social Structure

The social structure of wild burros is different from wild horses in that wild burros do not form breeding bands or harems. There are no personal bonds, other than jenny-foal relationships, between individuals. The animals occur in male groups known as bachelor bands, in female groups known as jenny-foal groups and in mixed groups. All of the groups are variable and their composition may change at any time. Groups may form for several hours or for several weeks. Some of the older studs become territorial but do not prevent other males from entering their territory unless there is an estrous female present. Within this type of organization there is no order of dominance or leadership other than within these limited territories. All adult members seem to be of equal rank and only the jenny and her foal ever search for each other when they are separated. It is more common for males to roam freely throughout their habitat and breed upon encountering an estrous female. Large male groups may form in the vicinity of an estrous female. In dispersed populations in a desert environment, breeding efficiency increases as the population densities increases. As the daily temperatures increase and water availability decreases, more and more animals must gather around the remaining available water sources. These areas then, become important areas for maximizing breeding. This temporary or seasonal increase in population density increases the chance for males to encounter estrous females. This loose social structure, where all animals are potential breeding partners, maximizes genetic diversity in small or dispersed populations. The breeding season is year long. The estrous cycle appears to be more common during the cool or wet seasons than the hot or dry months.

Food and Water Habits

During the summer, a burro will drink from 2.5 to 4.0 gallons a day and generally does not travel more than 3 miles from an available water source. During times of moderate temperatures and especially when succulent annuals are prevalent, the burros may go without water for 3 to 5 days and travel longer distances.

The major perennial forage species along the Colorado River are: Big Galleta Grass (Hilaria rigida), Ocotillo (Fouquieria splendens), Ironwood (Olneya tesota), Palo Verde (Cercidium spp.), Mesquite (Prosopis spp.) and White Bursage (Ambrosia dumosa). Studies conducted by Omart, Woodward and Seegmiller in the 1970's, indicated that diets of burros consist between 40%-60% shrubs, 30% forbs and 4%-20% grasses.

3.8 Recreation Management

> The California Desert attracts millions of visitors annually to its wide spectrum of recreational opportunities. Its diverse landscapes create a variety of physical and psychological settings which provide a "desert experience" of natural beauty, solitude, and freedom from the structure and regulations of the urban areas of southern California, where 85 percent of these visitors live.
>
> With expanded leisure time and growing affluence of southern Californians, conflicts have arisen between those who use vehicles as a means of access and those who operate vehicles as a recreational activity. Access can be for a variety of purposes, including economic pursuits and for recreation such as hunting and rockhounding. In addition, recreationists compete for space with other resource users. While strongly advocating that recreational facilities and regulations remain minimal, desert recreationists increasingly demand the protection of the natural and cultural values which are essential to most desert recreation. Scenic values are often cited by the public as the Desert's most important resource.
>
> The California Desert is already important as a reservoir of open space and as a place for outdoor recreation. While the BLM as an agency is not readily known, lands managed by the Bureau are especially significant to recreationists. The public lands will become increasingly important since they are closer to urban centers than most other recreation areas, such as Death Valley, and offer a wider variety of recreation experience.
>
> A substantial increase in demand for facilities and services, especially educational and interpretive programs, will occur primarily because of increased population growth in southern California. Other factors include:
>
> (1) An emerging awareness of desert resources and values,
> (2) Saturation of other outdoor recreation areas in southern California,
> (3) Energy shortages and economic stresses which will cause more people to come to the relatively close Desert and stay longer, and
> (4) Technological innovation in recreational equipment which will influence user trends and consequently the demand for various resources.
>
> *from* California Desert Conservation Area Management Plan (1980)

Such was the view regarding recreation in the California Desert almost two decades ago. Have some facets of this overview changed since then? Certainly it is no longer true that leisure time is increasing, at least for much of the working population. Harvard economist Juliet Schor (1989) predicted that Americans would have less free time as we move to the next century. This trend can be attributed, in part, to individuals holding multiple jobs, part-time workers who are stay-at-home parents, and other tasks which occupy increasing amounts of time.

On the other hand, one would expect that given our aging population, a large group of individuals will have more free time than ever before as they leave the work force. Heath (1997) indicated that many people over age 40 are starting to engage in "high risk" activities. This demonstrates that the "retired" population is not content to spend their remaining years in an inactive mode, rather they increasingly desire to continue a life of activity. Census Bureau projections show the elderly of the future will be more well educated than previous cohorts. It is conceivable that this group may have a strong desire to engage in learning about nature and viewing wildlife, activities that may well lead them to the unconfined open spaces of the NECO Planning Area.

Has there been continued growth of affluence since 1980 which might lead to additional expenditures on recreational equipment and increased visitation to the California Desert? Data reported at the national level from the Outdoor Recreation Coalition of America (1996) showed substantial increases in recreation equipment purchases. With the dramatic rebound of the California economy since economic recession of the early 1990s, it is likely that some of this increased purchase activity is occurring in this state, and, if this is true, Californians at least have the intent to engage in outdoor recreation activities. This, in conjunction with an increasing preference for natural and undeveloped areas (from 26.5% of Californians in 1987 to 39.4% in 1997; CIC Research, Inc., 1997), could translate to increases in visitation to the California Desert, especially the remote, less-frequented areas such as those within the NECO Plan boundaries.

Relative to trends for specific recreation activities which are of primary importance to visitors in the NECO Planning Area, the following levels of participation have been observed since 1987:

- General nature study has steadily increased.
- Off-highway vehicle use of 4-wheel drive vehicles dropped in 1992, and then climbed back to the 1987 level by 1997.
- Use of motorcycles and ATVs was about the same between 1987 and 1992, but increased by about 30% in 1997.
- Camping in developed sites and primitive areas exhibited growth in 1992 and then declined to about their 1987 levels by 1997.

Californians were asked in 1997 which activities that take place in government-operated park and outdoor recreation areas were most important to them. Of the 43 activities listed, opportunities for 12 exist within the NECO Planning Area. Regarding these 12 activities, they responded as follows:

High Importance	Moderate Importance	Low Importance
– Trail hiking – Camping in developed sites with tent or vehicle – Camping in primitive areas / backpacking[1] – General nature study / wildlife viewing	– Driving for pleasure – Horseback riding – Picnicking in developed sites	– Mountain biking – Hunting – Target shooting – Motorcycles, dirt bikes, ATVs, dune buggies used off paved roads – 4-Wheel drive vehicles used off paved roads

It is important to recognize that a statewide survey regarding public opinions and attitudes on outdoor recreation may not be directly applicable to any particular region, much less an area like the NECO Planning Area which itself is home to relatively few people and generally requires a substantial effort to access, i.e., for many, driving long distances is necessary to reach the area. It may be reasonable to assume that a survey of populations residing near the NECO Planning Area (e.g., El Centro, Blythe, Needles, cities in the Coachella Valley) would yield different results. Therefore, a description of recreation trends for the area, sans a statistically valid survey, is problematic. One must then rely on anecdotal information from sources in the best position to observe recreational use in this part of the California Desert.

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[1] Opportunities for pursuing such activities in a wilderness setting were enhanced upon passage of the California Desert Protection Act of 1994 (16 U.S.C. 1132 *et seq.*) which designated certain lands in the California Desert Conservation Area as wilderness, and therefore, as components of the National Wilderness Preservation System.

Multiple-Use Classes

The CDCA Plan furnishes guidelines specifying the types of recreational activities allowed in each of the Multiple-Use Classes (BLM-administered lands only). These guidelines are as follows:

[illegible]	[illegible]	[illegible]	[illegible]
This class is suitable for nonmechanical types of recreational experience which generally involve low to very low user densities. Recreational opportunities provided include, but are not limited to, the following characteristic activities: - backpacking - primitive, unimproved site camping - hiking - horseback riding - rockhounding - nature study and observation - photography and painting - rockclimbing - spelunking - hunting	This class is suitable for recreation which generally involves low to moderate user densities. Recreation opportunities include those permitted in Class C plus: - landsailing on dry lakes - noncompetitive vehicle touring and events only on "approved" routes of travel All organized vehicle events, competitive or not, require a permit specifying the conditions of use; these conditions will include, but are not limited to: - approved routes - no pitting, start, finish, or spectator areas	This class is suitable for a wide range of recreation activities which may involve moderate to high user densities. Recreational opportunities include those permitted in Class L. Competitive motorized-vehicle events are limited to "existing" routes of travel and must be approved by the authorized officer. Pit, start, and finish areas must be designated by the authorized officer. All competitive events having 50 or more vehicles require permits.	This class is suitable for recreation activities which generally involve high user densities. A wide array of recreational opportunities will be found in this class. Off-road vehicle play will be allowed where approved in open areas. Uses permitted are the same as Class M; in addition, motorized-vehicle play is allowed in areas designated "open." All aspects of competitive events will be permitted except where specific militations are stipulated by the authorized officer.
Permanent or temporary facilities for resource protection and public health and safety may be allowed at the discretion of the authorized officer or in accordance with approved Wilderness Management Plans	Permanent or temporary facilities for resource protection and public health and safety are allowed.		
Trails are open for non-vehicular use and new trails for non-motorized access may be allowed.			

Access
To engage in most desert recreational activities outside of open areas, visitors must use motorized vehicles and usually travel on some previously-used or marked motorized-vehicle route. Understandably, vehicle access is among the most important recreation issues in the desert. A primary consideration of the recreation program, therefore, is to ensure that access routes necessary for recreation enjoyment are provided. Specific route identification will occur in conjunction with the NECO Plan.

Washes
Access to washes by motorized vehicles in the pursuit of recreational opportunities has surfaced as a primary issue in the NECO planning effort. Whereas washes provide motorized-vehicle access for hunting,

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sightseeing, nature study, and camping, they also constitute important habitat for many wildlife species, amongst which is the desert tortoise. Opinions as to the effects of motorized vehicles traveling in washes, especially those where use is relatively low, vary greatly. (As regards washes as routes of travel, see Section 3.11, *Off-Highway Vehicle Use / Motorized-Vehicle Access.*)

Desert Wildlife Unlimited, Inc. (El Centro, California) characterizes recreational use in Milpitas Wash and adjacent wash areas as follows:

Milpitas Wash area

- Approximately 150 hunters focus on the Milpitas Wash area during the deer hunting season (generally the month of November).
- Hunters seeking quail, dove and other game use the area during appropriate seasons (generally fall, winter).
- Most hunters favor existing roads, trails and large, easy-to-drive washes.
- About 1/4 of the hunters camp in the wash complex, mostly on private lands and usually on opening weekend of the deer season.
- Most hunters drive existing roads, trails and large washes, then walk rougher terrain.
- Driving in washes during hunting season occurs primarily with large vehicles (e.g., sport utility vehicles) versus all-terrain vehicles.
- Very little cross-country travel from wash to wash occurs due to the extensive nature of existing roads, trails and washes.
- Other recreational use (e.g., sightseeing, rockhounding) occurs mostly from October through April with about 25 recreationists visiting the area on weekends, 10 on weekdays, but concentrating at specific sites (e.g., Hauser Geode Beds).

Wash area southeast of Highway 78

- Approximately 450 hunters focus on this area during the deer hunting season.
- Hunters seeking quail, dove and other game use the area during appropriate seasons.
- Most hunters favor existing roads, trails and large, easy-to-drive washes.
- Only 10-15% of the hunters camp in the washes; relative to the Milpitas Wash area, more motorhomes are used for camping.
- Most hunters drive existing roads, trails and large washes, then walk rougher terrain.
- Driving in washes during hunting season occurs primarily with large vehicles (e.g., sport utility vehicles) versus all-terrain vehicles.
- Very little cross-country travel from wash to wash occurs due to the extensive nature of existing roads, trails and washes.
- Other recreational use (e.g., sightseeing, rockhounding) occurs mostly from October through April with about 25 recreationists visiting the area on weekends, 10 on weekdays, but concentrating at specific sites.

In general, similar levels of activity in other parts of the NECO Planning Area on BLM-administered lands are believed to be occurring with some exceptions (e.g., lower Chemehuevi Valley where immediately adjacent to the community of Havasu Lake there occur moderate to high levels of off-highway vehicle activity, although much of the intense activity is just outside the NECO Plan boundary on public lands administered by the Lake Havasu Field Office, Arizona).

Organized Competitive Vehicle Events

The CDCA Plan allows for long-distance, point-to-point events by delineating competitive recreation courses. The two courses within the NECO Planning Area—*Johnson Valley to Parker* and the *Parker 400* (Map 2-30 Appendix A)—were established exclusively for permitted competitive recreation, not for access or casual recreation unless specifically approved in later actions. Criteria for designing other race events are contained in the Multiple-Use Class guidelines (above) and the CDCA Plan under Recreation Element. Because of potentially sensitive resources in Multiple-Use Class "L" areas, race routes through these areas must comply with the following additional requirements:

(1) All courses will remain on routes of travel that have been approved for motorized-vehicle use. Event routes on special areas such as dunes and dry lakes will be governed by the MUC "L" guidelines and any special management objectives identified for the area. Special limitations such as ACEC management prescriptions, speed limits, seasonal closures, monitoring requirements, etc. may be needed to protect the resource values in the area.

(2) Pit, start, finish, and spectator areas will not be allowed. Course verification points, or checkpoints, where race officials will monitor riders and verify that they have followed the prescribed course, are allowed. No mechanics' services or fuel stores are allowed at these checkpoints.

(3) Fragile and/or significant areas will be avoided unless environmental assessment shows that any potential impacts to these areas could be mitigated or would not occur. Such areas include, but are not limited to: a) ACECs; b) habitats of endangered, threatened, rare or protected species; c) educational, and research areas; d) archaeological and historical areas and features; e) sensitive soils and susceptible wind-borne dust areas; f) wetlands and riparian habitats; and g) areas near urban populations.

(4) The BLM will require the event sponsors to mitigate potential negative impacts and may require rehabilitation where feasible. For example, the sponsor may have to provide official observers at mandatory checkpoints to ensure that racers comply with the designated course. Also, damage to the route may need to be repaired.

(5) All racecourses are temporary and may not be used on a continual basis pending specific resource studies. All approved competitive routes are temporary and exist only for the life of the specific event for which the route was designed. Pending resource studies on event routes in MUC "L," which may or may not indicate that an area is suitable and capable of tolerating such use, no approved route may experience more than one event annually. In some cases, the route may be used even less frequently. It would be considered rare that an approved route could receive more than a single annual race event.

(6) Long-term adverse impacts will not be allowed. Adverse impacts or scars predicted to remain on the resource beyond one to five years are, in general, considered "long-term" and are not tolerated in MUC "L" areas. All identified adverse impacts in MUC "L" areas will be avoided or complete mitigation will have to be shown to be possible within a reasonable time frame, not to extend beyond five years from the date of the event.

(7) Event participants may have to traverse MUC "L" under controlled (yellow flag) conditions (e.g., no passing, timed speeds, maintained roads) as appropriate for resource protection and public safety. This criterion is conditional and depends on such factors as management objectives for the area, special resources, length of the course, dust conditions, type of event, season of use, etc. This option provides not only protection of valuable resources, but also safety for the race participants where hazards may exist.

(8) Length (mileage) of the event passing through MUC "L" will be a key factor in determining

use. As the approved route length increases, it can be generally expected that more controlled race requirements, such as yellow flag conditions, may be mandated.

(9) Width of the course will be the minimum practicable for resource protection and public safety. All approved routes must be capable of tolerating the number of persons and vehicles expected to enter the area.

(10) All other alternative routes have been considered.

All criteria are in addition to those required in accordance with 43 CFR 8372 (see "Special Recreation Permits" below).

Johnson Valley to Parker:

The *Johnson Valley to Parker* corridor extends approximately 220 miles from the upper Johnson Valley Off-Highway Vehicle Recreation Area to the vicinity of Parker, Arizona. The last third of the corridor corresponds to the southern portion of the California loop of the *Parker 400* corridor. The *Johnson Valley to Parker* corridor was used for the "Checkchase" sponsored by the AMA Checkers Motorcycle Club. The event last occurred in the 1980s.

Parker 400:

The 105-mile California portion of the *Parker 400* corridor generally circumnavigates the Turtle Mountains with the eastern leg skirting the Whipple Mountains; the remainder of the course occurs in Arizona. SCORE International was the primary sponsor for the event that historically took place in late January or early February. Of the participants, 75 percent were four-wheeled trucks and dune buggies. Based on post race evaluations (finding a significant amount of course widening, short cutting, and illegal cross-country travel) and the experience with the *Barstow to Las Vegas* race and application, the BLM decided to deny the application for the California loop of the 1990 event. Insufficient time to prepare an Environmental Impact Statement was an important consideration.

After the 1989 emergency and proposed listing of the desert tortoise as "endangered," and the 1989 Barstow-to-Las Vegas (B-to-V) race, BLM's February 13, 1990 Policy Paper regarding competitive off-highway vehicle events recommended that BLM "pursue a Plan Amendment(s) to eliminate the four competitive event courses and corridors from the California Desert Conservation Area Plan and deny any further applications for use of these corridors until the amendment process is complete." The *Johnson Valley to Parker* and *Parker 400* corridors comprise two of these four corridors.

A CDCA Plan amendment was initiated and there was some public scoping, but the amendment was never completed. BLM published a Notice of Intent to Prepare the Plan Amendment in the *Federal Register* on December 22, 1989. The American Motorcyclist Association (AMA) filed suit (April 6, 1990) challenging BLM's adoption of the Policy Paper and BLM's denial of AMA's permit application for the 1990 B-to-V race (March 6, 1990). On June 8, 1990, the District Court (Findings of Fact and Conclusions of Law—SA CV 90-267-JSL {rwrX}) addressed BLM's authority to deny a permit for the 1990 B-to-V race and how the inclusion of the competitive event courses in the CDCA Plan should influence BLM's consideration of permits for individual events such as the B-to-V race.

There are two important rulings in the decision of the District Court: (1) BLM may deny a permit for a race after following proper procedures (preparing an EA); and (2) BLM should assume that permits for events such as the B-to-V race will be issued "absent a change in the circumstances which led to the establishment

(7)

of the race courses." The second aspect of the decision is the reason a plan amendment on competitive corridors needs to be analyzed. Despite good cooperation from AMA in its attempts to assure compliance with event stipulations for the 1989 B-to-V race, neither BLM nor AMA could provide such assurance. BLM and USFWS monitoring conducted after this event found that some participants strayed from the marked course in tortoise habitat. These incidents of straying were violations of the permit stipulations. For this reason, competitive event courses, designated before the federal listing of the tortoise, may conflict with tortoise recovery. Whereas the inclusion of competitive event corridors in the CDCA Plan "clearly contemplate that permits will be issued" (District Court, 1990), such assumption is qualified by the statement, ". . . absent a change in circumstances which led to the establishment of the race courses." The listing of the tortoise may constitute this change.

Special Recreation Permits

Special Recreation Permits are required for a) commercial use, b) competitive use, c) off-road vehicle events involving 50 or more vehicles, and d) special area use where the authorized officer determines the criteria of the Land and Water Conservation Fund Act, as amended, Sikes Act, Wild and Scenic Rivers Act, Federal Land Policy and Management Act, Taylor Grazing Act, or National Trails Act require their issuance (43 CFR 8372.1-1).

The following definitions (from 43 CFR 8372.0-5[2]) are pertinent to organized competitive vehicle events:

(a) *Competitive use* is any formally organized or structured use, event, or activity on public land in which there are the elements of competition between two or more contestants, registration of participants, and/or a predetermined course or area is designated. The term also applies to one or more individuals contesting an established record such as speed or endurance.

(b) An *event* is a single, structured, organized, consolidated, or scheduled meeting or occurrence for the purpose of recreational use of the public lands. An event may be composed of several related activities.

(c) An *off-road* [off-highway] *vehicle* is any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain excluding (1) any nonamphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is specifically authorized by the authorized officer or otherwise officially approved; (4) official use; or (5) any combat or combat support vehicle when used in times of national defense emergencies.

All applicants for Special Recreation Permits to conduct competitive off-highway vehicle events must comply with the application requirements and, upon issuance, permit conditions as indicated on Form 8370-1, *Special Recreation Application and Permit*. Generally, Special Recreation Permits for competitive events include stipulations that address various operational and resource protection issues, including course alignment and marking, safety, enforcement of rules, reclamation and cleanup, and monitoring.

Off-Highway Vehicle Recreation Areas

In developing the CDCA Plan, thirty-three potential motorized-vehicle free-play areas were evaluated by personnel from each resource division of the Desert Planning Staff. The inventory of potential choices included all such areas shown on the "Use" alternative plus additional areas each resource division believed should be considered. The area-by-area impact analysis, decision criteria, opinions, and final boundary maps for motorized free-play areas were submitted to the Steering Committee for final decision on inclusion in the proposed CDCA Plan. Within these free-play areas, also recognized as "open areas" and "off-highway vehicle recreation areas," vehicle travel would be permitted anywhere if the vehicle is operated responsibly in accordance with regulations.

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[2] Note: On May 16, 2000, a proposed rule was published in the *Federal Register* (Volume 65, Number 95) to update the regulations at 43 CFR 8372. If the proposed rule is adopted, the new regulations would be found at 43 CFR 2930

Two "open areas" within the Planning Area (Map 2-20 Appendix A) were approved through the CDCA Plan: Ford Dry Lake and Rice Valley Dunes Off-Highway Vehicle Recreation Areas, both of which are administered by the BLM Palm Springs-South Coast Field Office.

Ford Dry Lake

The "McCoy Valley Area," which envelopes much of the Chuckwalla Valley inclusive of Ford Dry Lake, was among the areas evaluated through the CDCA Plan. This 251,400-acre area is bounded on the northeast by the lower foothill portion of the McCoy Mountains, on the north by the lower foothills of the Palen Mountains, and along the south-southwest by the Little Chuckwalla and the Chuckwalla Mountains. A neck of land extending to the north is bounded by the Palen Mountains on the east, and the Palen Dry Lake and drainage basin on the west.

A major portion of the McCoy Valley Area was designated "open" in the Interim Critical Management Plan (1973). Many concentrated use zones occurred throughout the McCoy Valley Area and more than 94,000 visitor use days were recorded in 1978. The CDCA Proposed Management Plan recommended that no motorized-vehicle free-play occur in the McCoy Valley Area to protect sensitive resources, particularly bighorn sheep habitat as the McCoy Valley includes an important migration route between bighorn sheep ranges. The Environmental Impact Statement indicated that closure of this area to motorized-vehicle free-play would have a significant negative impact on this recreational activity. However, at the same time, it stated that vehicle free-play is probably less important in this area than other forms of vehicle use.

Based on public responses to the Proposed CDCA Management Plan, specific issues were reexamined by the Desert Planning Staff and changes were made to the Plan. As regards Ford Dry Lake, a public request for a free-play area near Blythe resulted in a portion of Ford Dry Lake being designated as an off-highway vehicle recreation area (1135 acres).

Although no recent surveys have been conducted to ascertain levels of use on Ford Dry Lake, anecdotal information from the BLM's Palm Springs-South Coast Field Office staff indicates it receives little motorized-vehicle free-play use. This confirms the CDCA Plan's contention that vehicular free-play in this area is less important than other forms of vehicle use such as recreational touring on existing and approved routes of travel.

Rice Valley Dunes

Whereas the McCoy Valley Area was evaluated during development of the CDCA Management Plan for its potential to provide motorized-vehicle free-play opportunities, the Rice Valley area was not likewise considered. However, consequent to public response to the Proposed Plan, vehicular access for the Rice Valley Dunes was changed from "existing routes of travel" to "open" (2790 acres).

The Rice Valley Dunes Off-Highway Vehicle Recreation Area lies in the center of Rice Valley, an expansive area bounded on the north by the southern tip of the Turtle Mountains, on the east by the West Riverside Mountains, on the south by the Little and Big Maria Mountains, and on the west by the Arica Mountains. No surveys have been conducted to determine use levels in this OHV area, but anecdotal information from BLM staff indicate that like Ford Dry Lake, it is not frequently used as a motorized-vehicle free-play area.

Lower Chemehuevi Valley *(not a designated OHV Recreation Area)*
The lower Chemehuevi Valley area immediately south of Havasu Lake, California, was identified by Needles Field Office staff as a "hot spot" in the California Desert Conservation Area. "Hot spots" are areas of intensive off-highway vehicle use where such activity is often not in conformance with existing management prescriptions and/or regulations and, therefore, require special management consideration. In particular, the easternmost portion of Chemehuevi Wash exhibits evidence of considerable cross-country travel and hill-climbing activity by motorized vehicles in an area where vehicle use is restricted to existing and/or approved routes of travel. Such off-route activities may result in higher levels of erosion within the confines of the wash, ultimately leading to increased sedimentation in Lake Havasu itself. The easy accessibility of Chemehuevi Wash from the community of Havasu Lake, in conjunction with high levels of seasonal visitation of the resort by individuals not permanently residing there, is a prime contributor to the problem.

Most of the illegal activity (off-road travel and hill climbing) occurs within three sections of public lands administered by the BLM Lake Havasu Field Office (LHFO), Arizona. These lands occur outside critical desert tortoise habitat as designated by the U.S. Fish and Wildlife Service, and outside the NECO Plan boundary. Given these sections' isolation from the main body of public lands within jurisdiction of the LHFO, which is located on the Arizona side of the Colorado River, day-to-day management of the California lands is problematic.

The Chemehuevi Indian Tribe, whose lands are adjacent to public lands managed by the LHFO and Needles Field Office, is planning to expand its recreational facilities. Such expansion could intensify OHV-related problems in Chemehuevi Wash as increasing numbers of visitors are drawn to the area, including an increase of OHV use to the west spreading beyond the reservation and LHFO public lands into the NECO Planning Area and critical tortoise habitat.

Long-Term Visitor Areas
Every year thousands of visitors come to southern California and Arizona from all parts of the United States and Canada to take advantage of the mild winter climate and recreational opportunities offered in this desert region. While some visitors choose to isolate themselves from others, the vast majority of these "snowbirds" tend to congregate in relatively large, high-density "communities." Traditionally, much of this use was in established campgrounds, but in the late 1970s and early 1980s there began a trend of establishing these communities in the open desert where facilities are rarely available. Here, the impact on the fragile desert environment can be severe, especially when visitors stay for extended periods of time in the same location.

In response to this developing situation, the BLM established several Long-Term Visitor Areas (LTVAs) along the lower Colorado River in 1983. Designated sites were selected using criteria developed during the land management planning process, and environmental assessments were completed for each site location. The designation of LTVAs assures that specific locations are available for long-term use year after year, and that inappropriate areas are not used for extended periods. In conjunction with establishing the LTVAs, a limit on camping on public lands outside LTVAs was enacted. Visitors could camp in one location outside an LTVA, unless closed to such use, for no more than 14 days in any 28-day period.

Within the NECO Planning Area, there are three LTVAs: Mule Mountains (2554 acres) (Palm Springs Field Office), Midland (512 acres) (Palm Springs Field Office), and Pilot Knob (158 acres) (El Centro Field Office). In response to increasing interest in long-term camping in the Midland area, the Midland LTVA was expanded in 1996. While the Mule Mountains LTVA is very large, 90% of the use is contained within two campgrounds within areas about 3 miles aprat from each other.

Joshua Tree National Park

In Joshua Tree National Park, natural and cultural resources provide outstanding recreational opportunities for the more than 1.2 million visitors that come to the area annually. The wilderness provides an opportunity for solitude in nature and for primitive recreation such as hiking, backpacking and horseback riding. Opportunities for viewing, studying and photographing a diversity of flora and fauna abound. Massive boulders and rock outcrops provide some of the best rock climbing in the United States; skilled and novice technical rock climbers from around the world are attracted to the challenging climbing routes.

Chocolate Mountain Aerial Gunnery Range

The Chocolate Mountain Aerial Gunnery Range is closed to public access; these lands are not available for recreational purposes.

Summary

[3]Off-highway vehicle touring, hunting, primitive camping in undeveloped sites, and other recreation activities that rely on large expanses of relatively unpopulated and undeveloped desert landscapes continue to be important within the NECO Planning Area despite statewide survey results reported by California State Parks (1998). In general, the overall level of recreational use is currently low throughout the Planning Area except on a site-specific, seasonal basis. For instance, use in developed campgrounds and long-term visitor areas, as well as on lands adjacent to the Imperial Sand Dunes Recreation Area, is often moderate to high during the cooler months of the year. But as distances from concentrated use zones increases, there is generally a concomitant decrease in use. Regarding trends of popular recreation activities in the Planning Area, use appears to be neither substantially increasing nor diminishing.

3.9 Off-Highway Vehicle Use / Motorized-Vehicle Access

Other than those who are simply crossing it, most users of the desert travel some of the time on its network of maintained gravel and dirt roads, ways, trails, and accessible desert washes. There are many of these "routes of travel" in the California Desert Conservation Areas (CDCA).

According to one study, the CDCA has 15,000 miles of paved and maintained roads, 21,000 miles of unmaintained dirt roads, and 7,000 miles of vehicle-accessible washes. However, these routes are not evenly distributed, and desert topography and vegetation do not prevent, and sometimes encourage, cross-country travel in motorized vehicles. Desert soils and vegetation retain the marks of this kind of travel for many years, except in a few places where occasional rains, windstorms, and flash floods erase them. Thus, one vehicle traveling cross-country can create a new route of travel. The proliferation of roads and trails in the CDCA has resulted in a serious problem in some areas and provides the most difficult management issue for BLM and the public.

Many of the Desert's loveliest and most fragile resources can only be enjoyed by use of vehicle access routes, but these resources are quickly destroyed if vehicles travel everywhere. Most people who go to the desert revel in its spaciousness and the feeling of solitude and freedom it provides. However, growing numbers of vehicles and uncontrolled expansion of this network of roads and trails may damage this solitude, and heavy-handed regulations to control this traffic would certainly affect the sense of freedom.

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[3] Statewide trends, statistical information and survey results presented in this section are derived from Public Opinions and Attitudes on Outdoor Recreation in California 1997, California State Parks, 1998.

> The question of managing access to the desert is especially sensitive. Vehicle access is confused with the use of vehicles for play. Public comments make it clear that motorized-vehicle access and off-highway vehicle play need to be clearly separated and managed differently. . . .
>
> While the Bureau is responsible for vehicle use on public lands, much of the control of vehicle travel in the desert is the responsibility of the user, whether the goal is recreational or commercial. The Bureau of Land Management does not and will not have the funds or staff to oversee vehicle use throughout the desert at all times. Therefore, rules for vehicle use must be fair, understandable, easy to follow, and reasonable if they are to be publicly accepted. Only commitment by the public, the owners of these lands, will insure success of rules and guidelines.
>
> *from* California Desert Conservation Area Management Plan (1980), as amended

Issuance of Executive Orders and Development of Regulations

The increased popularity and widespread use of off-highway vehicles (OHVs) on federal lands in the 1960s and early 1970s prompted the development of a unified federal policy for such use. Executive Order 11644 ("Use of Off-Road Vehicles on the Public Lands") was issued on February 9, 1972 (87 F.R. 2877), to establish policies and provide for procedures to control and direct the use of OHVs on federal lands so as to (1) protect the resources of those lands, (2) promote the safety of all users of those lands, and (3) minimize conflicts among the various uses of those lands. The order directs the agency heads responsible for managing the federal lands to issue regulations governing the designation of areas where OHVs may and may not be used. Under the order, OHV use can be restricted or prohibited to minimize (1) damage to the soil, watersheds, vegetation, or other resources of the federal lands; (2) harm to wildlife or wildlife habitats; and (3) conflicts between the use of OHVs and other types of recreation. It also requires the federal agencies to issue OHV use regulations, inform the public of the lands' designation for OHV use through signs and maps, enforce OHV use regulations, and monitor the effects of OHV use on the land.

Executive Order 11989 ("Off-Road Vehicles on Public Lands") was issued on May 24, 1977 (42 F.R. 26959), and contains three amendments to the previous order. While these amendments lift restrictions on the use of military and emergency vehicles on public lands during emergencies, they otherwise strengthen protection of the lands by authorizing agency heads to (1) close areas or trails to OHVs causing considerable adverse effects and (2) designate lands as closed to OHVs unless the lands or trails are specifically designated as open to them.

The BLM developed regulations (Title 43 of the Code of Federal Regulations [CFR] 8340) in response to the executive orders. These regulations require the agency to designate areas where OHVs may be used and to manage the use of OHVs on public lands through the resource management planning process, which allows for public participation. The regulations also require the BLM to monitor the use of OHVs, identify any adverse effects of their use, and take appropriate steps to counteract such effects.

Development of the CDCA Management Plan

Recognizing that resources of the California desert can and should "provide present and future use and enjoyment, particularly outdoor recreation uses, including the use, where appropriate, of off-road recreational vehicles," Congress, through Section 601 of the Federal Land Policy and Management Act of 1976 (FLPMA), directed the Secretary of the Interior to prepare and implement a comprehensive, long-range plan for the management, use, development, and protection of the public lands within the California Desert Conservation Area. In response, the Bureau of Land Management prepared the CDCA Management Plan (1980), an element of which addresses motorized-vehicle access.

Consistent with Executive Orders No. 11644 and No. 11989, all public lands in the California desert were designated as "open," "limited," or "closed" through the CDCA Plan. Subsequent to designation of areas for motorized-vehicle use, the Plan required on-the-ground route designation to occur within Multiple-Use Class (MUC) "L" (Limited), while existing routes of travel could be utilized in Multiple-Use Classes "I" (Intensive), "M" (Moderate) and "C" (Controlled), with MUC "C" being managed commensurate with MUC "L" guidelines until Congress designated these areas as wilderness. ("Existing routes of travel" were defined as routes existing before December 31, 1978 [the date of full aerial photo coverage of the CDCA].")

Route designation criteria for MUC "L" were identified in the CDCA Plan as follows:

(1) Is the route new or existing?
(2) Does the route provide access for resource use or enjoyment?
(3) Are there alternate access opportunities?
(4) Does the route cause considerable adverse impacts?
(5) Are there alternate access routes which do not cause considerable adverse impacts?

1982 Amendment to the CDCA Management Plan

Subsequent to approval of the CDCA Plan in 1980, environmental organizations filed action in U.S. District Court, C.D. California, challenging its route designation criteria. In response, the BLM amended the CDCA Plan's Motorized-Vehicle Access element (1982 Plan Amendment Three, approved May 17, 1983) to conform with 43 CFR 8342.1. Route approval would be based on the following criteria:

(1) Areas and trail shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability.
(2) Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.
(3) Areas and trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.
(4) Areas and trails shall not be located in officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established.

MUC guidelines for motorized-vehicle access

The 1982 amendment modified or reiterated prescriptions relative to motorized-vehicle access, including changes to the MUC guidelines established through the 1980 Plan. These guidelines are described below, and their application relative to the NECO Plan is discussed where clarification is necessary.

> ***MUC "C":*** Vehicle use on lands preliminarily recommended as suitable for wilderness, but not yet so designated by Congress, will be managed under guidelines described for Multiple-Use Class "L."
>
> NECO Plan: Congress designated certain public lands in the California desert as wilderness through the California Desert Protection Act of 1994 (CDPA), therefore, interim guidelines for managing these lands prior to designation are no longer applicable to the NECO Planning Area—all Wilderness Study Areas were released from further consideration as

wilderness. Vehicle access in designated wilderness will be allowed in accordance with provisions set forth in the Wilderness Act of 1964, the CDPA, the regulations at 43 CFR 8560, and applicable wilderness management plans.

MUC "L": Vehicle access will be directed toward use of approved ("open" or "limited") routes of travel. Routes not approved in MUC "L" areas will be reviewed and, after opportunity for public comment, those routes deemed to conflict with management objectives or to cause unacceptable resource damage will be given priority for closure through obliteration, barricading, or signing. All remaining routes of travel in these areas will be monitored for either inclusion as approved routes, or for closure to resolve specific problems.

> NECO Plan: In the California desert, washes are frequently used for motorized-vehicle access. Given the extent of washes accessible by motorized-vehicles—especially throughout the vast acreage of desert dry wash woodland in the southern portion of the Planning Area—the task of identifying individual wash routes for inclusion in the NECO inventory was considered unreasonable to undertake. Consequently, washes are addressed in terms of "wash zones."
>
> The use of washes within "washes open zones" or "washes limited zones" is restricted to those considered "navigable," unless it is determined that vehicle use must be further limited. (See "*Washes*" below regarding navigability.) Navigable washes in "washes open zones" and "washes limited zones" are designated "open" and "limited" *as a class,* that is, washes are not individually designated unless they are identified as specific routes in the NECO route inventory. In "washes limited zones," navigable washes are available for use on a seasonal basis; the periods of use are established through the NECO Plan or subsequent designation process. The use of washes in "washes closed zones" is limited to those specifically approved for use; all other washes, whether navigable or not, are "closed" *as a class.* All MUC "L" areas are considered "washes open zones" unless specifically designated "limited" or "closed."

MUC "M": Access will be on "existing" routes unless it is determined that use on specific routes must be further limited. An "existing" route is one established before approval of the Desert Plan in 1980, with a minimum width of two feet, showing significant surface evidence of prior vehicle use or, for washes, history of prior use.

> NECO Plan: Navigable washes in "washes open zones" are considered "existing" routes *as a class* and available for motorized-vehicle use unless such use is restricted through route-specific designations of "limited" or "closed."

MUC "I": Unless it is determined that further limitations are necessary, those areas not designated "open" will be limited to use of "existing" routes.

> NECO Plan: Navigable washes in "washes open zones" are considered "existing" routes *as a class* and available for motorized-vehicle use unless such use is restricted through route-specific designations of "limited" or "closed."

ACECs: In ACECs where vehicle use is allowed, vehicle access will be managed under the guidelines for MUC "L."

Undesignated Areas: In areas not assigned to a Multiple-Use Class, the route approval process will be applied as needed to resolve specific problems and to establish a cohesive program.

Washes, sand dunes, and dry lakes

The 1982 CDCA Plan amendment also addressed motorized-vehicle access on washes, sand dunes, and dry lakes:

Washes

Vehicle access using desert washes will be governed by the area designation for the vicinity in which the wash is located. In areas designated "closed," vehicle access in desert washes will be prohibited. In areas designated "open," vehicle access in desert washes will be permitted. In all "limited" areas, vehicle use in desert washes will be controlled in the same manner as for routes of travel in MUC "L," "M," and "I." In other words, vehicle use in MUC "L" will be directed toward approved desert washes; access in MUC "M" will be in existing washes, unless it is determined that use of specific washes must be further limited: and access in MUC "I" will be limited to existing washes in areas not designated "open." In addition, washes as access routes may have some type of travel limitation, such as speed limits or seasonal closure imposed to protect the resources found in or along the wash, or to minimize conflicts with other uses. [Also see discussion above under "*MUC guidelines for motorized-vehicle access*" regarding the use of washes *as a class*.]

In the context of motorized-vehicle access, the term "wash" is defined as a watercourse, either dry or with running or standing water, which by its physical nature—width, soil, slope, topography, vegetative cover, etc.—permits the passage of motorized vehicles, thereby establishing its "navigability" (Appendix VI, CDCA Plan). The implication of this definition is that washes can be considered as routes of travel only if wash banks are not compromised (primarily a function of width), soil stability is not adversely affected, and vegetation is not destroyed consequent to the passage of vehicles. If access to a wash by motorized vehicles results in vegetative destruction, disturbance to the integrity of wash banks, or an unacceptable degree of soil erosion—the destruction of natural features—the wash is not considered to be a route of travel.

Sand Dunes and Dry Lakes

Due to the unique geography of these areas, "routes of travel" cannot be readily delineated. Therefore, significant sand dunes and dry lakes within the California desert are designated either "open" or "closed" to vehicular travel regardless of the Multiple-Use Class in which the dune system or dry lake is located. The management objective for each dune system or dry lake will dictate the area's vehicle use designation.

Route designation definitions

The 1982 amendment defined route designations in the following manner:

Open Route

Access on the route by motorized vehicles is allowed.

Limited Route

Access on the route is limited to use by motorized vehicles in one or more of the following ways and limited with respect to:

1) number of vehicles allowed
2) types of vehicles allowed
3) time or season of vehicle use
4) permitted or licensed vehicle use only
5) establishment of speed limits

The same exceptions to motorized-vehicle use of closed routes also apply to limited routes (see below, "*Closed Route*").

Closed Route

Access on the route by motorized vehicles is prohibited except: (1) fire, military, emergency or law enforcement vehicles when used for emergency purposes; (2) combat or combat support vehicles when used for national defense purposes; (3) vehicles whose use is expressly authorized by an agency head under a permit, lease, or contract; and (4) vehicles used for official purposes by employees, agents, or designated representatives of the Federal Government or one of its contractors.

Except in Congressionally-designated wilderness areas, "open," "limited," and "closed" route designations may be made in each of the Multiple-Use Classes, in Areas of Critical Environmental Concern (ACECs), and in unclassified lands.

Implementation of the CDCA Management Plan

From 1973 to approval of the CDCA Plan in 1980, BLM managed access under the Interim Critical Management Program (ICMP). An integral part of that program was the release of a series of 22 maps covering the entire CDCA. These maps illustrated the ICMP designations and delineated a network of access routes compiled from existing maps, public input, and field review.

With approval of the CDCA Plan, the new OHV area designations became effective, and the ICMP maps and designations became invalid. However, until implementation of the CDCA Plan's Motorized-Vehicle Access Element, as amended, is complete, existing routes of travel may be used in all MUC "L" and "M" areas, in unclassified lands, and in those MUC "I" areas not designated "open" to motorized-vehicle access. In some areas, certain routes were closed under ICMP guidelines; these will remain closed. As implementation proceeds, inclusive of the route designation process associated with the NECO planning effort, some old limitations (including closures) may be revoked and others added.

NECO Route Inventory Process

Route designation for the NECO Plan began with developing an inventory of existing routes within the Planning Area. The inventory process is described in Appendix L and shown on Map 2-29 Appendix A.

Recreational Touring Routes

The focus of much recreational motorized-vehicle activity in the California desert is simply driving for pleasure, or "touring." Such touring ranges from travel on paved roads to traversing extremely difficult routes that require the use of four-wheel drive vehicles and winches. In the context of the NECO Plan, a network of routes that would satisfy the desires of the "touring" public becomes an important recreation resource to be considered alongside all other resource values. In identifying such a network, several criteria are considered:

- scenic quality
- challenge
- remoteness

- uniqueness
- historic value
- connectivity
- opportunity for exploration

In 1996, a request to the public was made to assist with identifying a network of routes for recreational touring. Three public workshops were convened (Riverside, El Centro, and Blythe) to provide further information about designating routes through the NECO Plan as well as to ask for help with identifying this touring network; no substantive assistance from the public occurred. BLM staff subsequently identified the recreational touring network as it appears on the routes of travel alternatives maps: 2-31 through 2-34 Appendix A.

Route Designation Revisions

Decisions affecting vehicle access, such as area designations and specific route limitations, are intended to meet present access needs and protect sensitive resources. Future access needs or protection requirements may necessitate changes in these designations or limitations, or the construction of new routes. For mining operations, additional access needs will be considered in accordance with regulations pertaining to surface management of public lands under the U.S. Mining Laws (43 CFR 3809). Access needs for other uses, such as roads to private lands, grazing developments, or communication sites, would be reviewed on an individual basis under the authority outlined in Title V of FLPMA and in accordance with appropriate regulations. Each proposal would be evaluated for environmental effects and subjected to public review and comment. As present access needs become obsolete or as considerable adverse impacts are identified through the monitoring program, area designations or route limitations may be revised. In all instances, new routes for permanent or temporary use would be selected to minimize resource damage and use conflicts consistent with the criteria at 43 CFR 8342.1.

Proposals for additional access needs shall be submitted at any time to the Bureau of Land Management Field Office which has jurisdiction over the subject lands.

3.10 Mineral Management

Within the Northern and Eastern Colorado Desert Planning Area, there are currently 16 mining operations, and 12 significant exploration programs being conducted on combined private and public lands. Many varieties of mineral resources are present in the California Desert, including 45 different mineral commodities in the Planning Area.

The largest mining operations are the open pit-heap leach gold mines in Imperial County and the Salt extraction mines on Bristol and Cadiz playas in San Bernardino County. The former are few in number and cover a few thousand acres. The latter are many small disturbances (e.g., roads and pits) occupying 1-2 % of each playa surface but scattered over about 15% of the each of the two playas. While the active life of gold operations is relatively brief (5 to 15 years) - some are currently in rehabilitation phases, the current nature and level of salt extraction is expected to remain constant for decades.

In the Northern and Eastern Planning Area, minerals are disposed from public lands under Federal laws, and guided by regulations promulgated pursuant to those laws. Most exploration and development activity on public lands, and associated with occupation and use of the surface resources are guided and authorized under the General Mining Law of 1872 (30 U.S.C. 22 et seq). This law allows prospecting and development of valuable mineral deposits through a location/appropriation system. The law allows use of surface resources, qualified by compliance with appropriate Federal and state laws and rules. Regulations developed pursuant to the Federal Land Policy and Management Act (FLPMA), and contained in Title 43, Code of Federal Regulations (CFR) Subparts 3802 and 3809, guide the Bureau in managing surface operations under the mining laws for purposes of preventing undue or unnecessary degradation to public land. Minerals subject to the operation of the General Mining Law are termed *locatable minerals*. When a "discovery" of a valuable mineral has been made by a mining claimant, he/she may acquire a possessor right to the mineral and may proceed with mining and acquisition of title to the land and minerals through a mineral patent. All activities on mining claims are reviewed by the BLM to assure that operations will not cause unnecessary or undue degradation to public land and resources. In addition, other Federal, State, and local permits or authorizations may be required to operate on a mining claim.

Common construction and building materials, such as sand and gravel, stone, cinders, pumice, and clay, found on public land, are permitted or sold by the BLM under the authority of the *Materials Act of July 31, 1947* (30 USC 601, et seq.). Material is sold by contract by the BLM at fair market value.

Certain Federal lands, such as military reservations, national parks, and wilderness, are closed to mineral operations except for valid existing rights established at the time of withdrawal. Mineral operations on private or State-controlled land in-holdings.

Maps 3-8, 3-9, and 3-10 show potential for metallic, construction, and industrial minerals in the Planning Area.

3.11 Cultural Resources

Much of our knowledge and understanding of the historic and cultural contexts for evaluating the affected environment and potential impacts to cultural resources is grounded in studies and assessments initially completed for the California Desert Conservation (CDCA) Plan in the late 1970s. The years between 1969 and 1980, culminating with the approval of the CDCA Plan, experienced an intensive and focused period of study for cultural resources in the California Desert. Cultural resources survey and site information, as well as the management proscriptions developed during the planning effort, continue to provide the principle management paradigm for cultural resources in the California Desert.

In addition to existing data, the CDCA planning effort carried out a systematic sampling program for the purpose of identifying and recording prehistoric and historic sites. One goal of that sampling program was to develop a predictive model for archaeological site locations desert-wide. During the CDCA planning effort, 179,200 acres (280 sq. mi.) were systematically inventoried throughout the CDCA using a variety of approaches, from stratified random sample surveys to intensive purposive surveys. Of that acreage, it is estimated that approximately 42,500 acres (66 sq. mi.) were located in the NECO planning area. This includes elements of those areas delineated in the CDCA plan as the Central Colorado, Picacho/Big Maria/Whipple Mountains, and Imperial study regions. In this area, survey coverage is described as ranging from 0.5 percent for 2.5 million acres in the Central Colorado region, to 1 percent for the Picacho/Big Maria/Whipple Mountains region. For these areas, 488 historic and archaeological sites, and other cultural resources loci had been identified and recorded as of 1980.

In conjunction with these field surveys, regional overviews and special studies were prepared that synthesized the regional archaeological, ethnological, ethno-historical and historical data, discussed past and projected research, identified significant cultural and environmental relationships, and significant research

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and management questions and needs. Of the seven regional overviews completed, two overviews (East Mojave: King and Casebier, 1976; Colorado Desert: Crabtree, Warren, and Knack, 1980, and Gallegos, et. al., 1979) deal specifically with cultural resources located within the NECO planning area. In addition, six of the special studies, which deal with mining (Shumway, Vredenburgh, and Hartill, 1980), California Desert rock art (Eastvold, 1974), historic trails and wagon roads (Warren and Roske, 1978), early historic accounts (Casebier, 1978), early human occupation (Davis, Brown, and Nichols, 1980), and an assessment of impacts to cultural resources (Lyneis, Weide, and Warren, 1980), are germane to the NECO planning area.

The stated goals of the CDCA plan, as amended, continue to form the basis of BLM cultural resources programs and activities. These goals include:

- Broadening the archaeological and historical knowledge of the CDCA through continuing inventory efforts and the use of existing data. Continuing the effort to identify the full array of the CDCA's cultural resources.
- Preserving and protecting a representative sample of the full array of the CDCA's cultural resources.
- Ensuring that cultural resources are given full consideration in land use planning and management decisions, and ensuring that BLM authorized actions avoid inadvertent impacts.
- Ensuring proper data recovery of significant (National Register quality) cultural resources where adverse impacts can be avoided.

To achieve the goals of the CDCA plan, seven basic actions were proposed and continue to form the basis of cultural resources management in the CDCA. These actions include: (a) Recognition through ACEC and other special designations; (b) Preservation and Protection; (c) Monitoring; (d) Inventory; (e) Mitigation Plans; (f) Research, and (g) Review and Coordination. The cornerstone to implementation of the cultural resources components of the CDCA plan was a Programmatic Agreement between BLM and the California State Historic Preservation Officer.

The original Programmatic Agreement resulting from the CDCA was amended several times, until finally being superseded in 1998 by a National Programmatic Agreement between BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. The National Programmatic Agreement is implemented in California by a Protocol Agreement between BLM California and the California SHPO. The new Programmatic Agreement and Protocol continue to emphasize all of the goals and actions necessary to achieve the cultural resources management proscriptions outlined in the CDCA Plan, but provide BLM more authority and responsibility in carrying out these responsibilities. This new management paradigm places an emphasis on proactive cultural resources management and decision-making and implementation of the provisions of Section 110 of the NHPA, while providing greater flexibility and streamlining to Section 106 provisions of the act.

The CDCA plan led to the identification and establishment of Areas of Critical Environmental Concern (ACEC). Of the 118 ACECs currently established, seventeen are located within the NECO planning area. Of these seventeen ACECs, eleven are designated in part because of their significant cultural resources values (Table 3-9).

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Table 3-9 Areas of Critical Environmental Concern designated for cultural resources values.

ACEC Name	Number
Marble Mountain Fossil Bed	48
Mopah Spring	75
Whipple Mountains	53
Pattons Iron Mountain Divisional Camp	52
Palen Dry Lake	55
Alligator Rock	78
Corn Springs	56
Mule Mountains	58
Gold Basin/Rand Intaglios	67
Indian Pass	68
Pilot Knob	73

Although the cultural resources data developed for the CDCA plan continues to provide the baseline for preservation planning, our information base for the planning area has expanded over the last twenty years as a result of survey and identification efforts completed for proposed land use actions as well as BLM cultural resource program initiatives. Current cultural resources data was obtained from records available in the California Historic Resources Information System and through a review of BLM cultural resources records. This information is reflected in the NECO cultural resources analysis. No on-the-ground field-work has been completed for this planning effort. Although many of the NECO planning decisions provide administrative direction and guidance to how lands will be managed in the future and are not tied to specific actions which might affect resources, these proscriptions can generally be characterized in terms of their overall benefit or impact to the cultural resources base. Where those planning directives result in specific actions on the ground that may affect cultural resources, such as installation of a wildlife guzzler, tortoise fencing, or range improvements, those actions will be analyzed through normal NEPA review and Section 106 of the NHPA.

As of the year 2000, more than 3700 historic and archaeological sites have been identified and documented in the NECO planning area (Table 3- 10). These resources represent the complete span of human occupation and activities in the desert over the past 10 - 12,000 years. Our current knowledge about these sites and the human behavior and history that they represent is based on the results of the systematic survey of approximately 3.9% (220,000 acres, 343 sq. miles)[4] of the land base in the planning area, which covers an area of more than 5,547,000 acres. Results of these systematic surveys are reflected in approximately 1500 individual survey reports (Table 3-11). Based on known resources and survey coverage, it is evident that the number of sites present in the planning area will increase as additional surveys are carried out. Only one region-wide overview has been completed by BLM for this area since the CDCA Plan. This overview describes the historic context for the historic World War II era Desert Training Center - California/Arizona

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[4] Acreage projections are only estimates extracted from available data sources and are only presented for comparative purposes.

Maneuver Area (Patton's Camps). The overview was completed in 2000 (Bischoff, 2000).

Table 3-10 Distribution of Historic and Archaeological Resources in the NECO Planning Area.

Total Historic and Archaeological Sites located within NECO Planning Boundaries	3,305
Sites on BLM managed lands	2,539
Sites on National Park Service managed lands	471
Sites on Department of Defense managed lands	110
Sites on other lands	169
Sites within San Bernardino County	658
Sites within Riverside County	833
Sites within Imperial County	1,816

Table 3-11 Distribution of Cultural Resource Survey Activity in the NECO Planning Area.

	No. Surveys	Acres	Percent NECO
Total Number of cultural Resource Surveys located within NECO Planning Boundaries (5,547, 723 Acres Total)	1,523	220,000	3.9
Surveys on BLM managed lands	1,296	181,000	3.3
Surveys on other lands	234	39,000	.6

Currently, there are 10 historic properties formally listed on the National Register of Historic Places located in the Planning Area. These sites are identified in Table 3-12

Table 3-12 Properties listed on the National Register of Historic Places in Vicinity of NECO Planning Area.

1. Fages-De-Anza Trail/Southern Emigrant Road
2. Blythe Intaglios (Earth Figures of California-Arizona Colorado River Basin)
3. Piute Pass Archaeological District
4. Topock Maze Archaeological Site
5. McCoy Spring Archaeological Site
6. North Chuckwalla Mountain Qarry District
7. North chuckwalla Mountains Pertroglyph District
8. Stonehead (Earth Figures of California-Arizona Colorado River Basin)
9. Winterhaven Anthropomorph and Bowknot (Earth Figures of California-Arizona Colorado River Basin)
10. Yuma crossing and Associated Sites

Paleontological Resources

Major deposits within the CDCA that are known to contain paleontological resources have been described in reports prepared for the CDCA plan (Woodburne, 1979; Murphy, 1978; Axelrod, 1979). With the exception of Quaternary lacustrine strata, the majority of the known highly sensitive areas and predicted areas occur in areas of some relief where dissection has exposed the fossilized remains. These areas as a whole are randomly dispersed throughout the California Desert Conservation Area (CDCA Plan, 1980: E-43).

Traditional Cultural Properties
Native American tribal groups were the first inhabitants of the California Desert region and continue to hold lands in the desert today. Archaeological sites, plant collection areas, ritual and ceremonial areas, and sacred areas are significantly connected to specific desert resources and regions. Potential threats and impacts to these resources are of concern to these tribes. These resources, often difficult to identify, do not have an associated physical or archaeological components. Locations may be held as closely guarded secrets by various tribes (CDCA Plan, 1980: E-43).

3.12 Land Use

BLM and JTNP have land acquisition programs although few inholdings remain in JTNP.. JTNP has recently received a large donation of land from the Wildlands Conservancy. BLM has significant inholdings, most notably for tortoises is the checkerboard ownership in critical habitat in Imperial County (Map 1-3 Appendix A). In the past 10 years, the BLM has purchased lands primarily on Chuckwalla Bench using Land and Water conservation Funds and compensation funds. CDFG has purchased lands in Chemehuevi critical habitat using compensation funds. The CDCA Plan allows of disposal of MUC M lands and unclassified lands only. In addition, BLM's Statewide Tortoise Management Policy prohibits disposal of Category I tortoise habitat and greatly restricts the disposal of Category II habitat.

Utilities
Probably the most significant use of the California Desert is for linear transmission facilities for electrical power, oil and gas products, water, and coaxial and fiber-optic cables. These facilities serve a critical need for infrastructure for people living in Southern California and Southwest in general. On Federal lands, rights-of-way for these facilities are granted under various land laws. To some extent all the Federal agencies have rights-of-way crossing their lands.

By their design, type, operation, and maintenance utilities create varying degrees of impact and population fragmentation. Pipelines create the most severe disturbance with a long period to recover and then re-disturbance for heavy maintenance (e.g., pipe replacement, pipe replacement, pipe recoating). Maintenance activities for several of the major pipeline systems have undergone desert-wide review by USFWS and have received programmatic biological opinions (e.g., Southern California Gas Company System, Arco Pipe Line)

Some of the electrical transmission systems have also received programmatic biological opinions for routine maintenance activities. Most of these utilities are contained within one or more of several utility corridors designated by the CDCA Plan (Map 2-1 Appendix A). The predominant orientation of the designated corridors is east-west, with a number of entry points to the Planning Area along the Nevada-Arizona border. Some of these utilities are outside of existing corridors (mostly low voltage distribution lines, private water pipelines and wells, telephone lines, etc.

There are also several communication sites within the Planning Area. Types of facilities include radio and TV broadcasting, microwave, cellular, commercial mobile radio, and private mobile radio.

Withdrawals
About 2,644,460 acres (48%) of Federal land in the Planning Area are withdrawn, or segregated, from appropriation under various public land laws. Public uses in these areas are limited in some cases depending upon the particular withdrawal. In general, limitations focus on wilderness, military land, public access, mineral entry, land disposal, and rights-of-way. To varying degrees, these segregation eliminate some

conflicts between use and conservation.

Colorado River Aqueduct

Based on the location of facilities and their operation, the MWD land can be put into three different zones: 1) developed (concrete, chain-link fenced canal; pumping stations with shop, housing, and administrative areas), 2) semi-developed (service roads, barrow areas, flood protection dikes, powerlines), and 3) undeveloped (areas for water wasting in the event the aqueduct needs to be drained, tunnel sections, old aggregate sources). These three zones have different effects and opportunities for species and habitat management. See Map 1-3 Appendix A for the location of the MWD right-of-way.

Other Land Uses

In addition to roads associated with utilities, there are access roads associated with private inholdings, both authorized and unauthorized, throughout the Planning Area, especially in the northeastern portion of Imperial County where there is an extensive checkerboard land pattern.

Authorizations have been issued for a variety of uses, i.e., rain gauges, seismic detection/recordation devices, water wells, apiary sites, research and filming.

The military periodically requests use of lands for various exercises, including search and rescue, firearms qualifications, land navigation training, reconnaissance and surveillance, cargo drops, parachute tests, and vehicle tests.

A number of small landfills have been in operation for a number of years near urban centers. Two large regional landfills, Mesquite (near Glamis) and Eagle Mountain (near Desert Center and Joshua Tree National Park) have been authorized, but are not yet operational. Landfills are not included as an element of land management by Federal land management agencies. Planning, proposals, environmental analysis, and approval occurs under the authority of local jurisdictions. There is a considerable body of documentation regarding needs and environmental concerns (e.g., ground water, species/habitats, air quality, and park/wilderness management) that is beyond the scope of this plan to describe. This plan does not address future need or siting of landfills.

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Chapter 4 - Environmental Consequences

Only resources and resource uses that would have consequences as a result of implementing the decisions within this proposed plan are discussed.

Both adverse and beneficial consequences, based on the effects of the proposed resource condition objectives, land use allocations, and the management actions are discussed. Mitigating measures in manuals, policy statements, congressional acts, etc., designed to avoid or reduce environmental consequences are incorporated into this environmental analysis. Those identified consequences are considered unavoidable with the prescribed mitigation.

Assumptions For Analysis

An interdisciplinary approach was used in developing and analyzing environmental consequences. The following general assumptions were applied:

- Implemented actions from decisions made in each management plan alternative would be in compliance with all valid existing rights, Federal regulations, Bureau policies, etc.
- Implementation of the approved Plan at the end of this planning process would begin 30 days after the approved Plan and record of decision are signed by the BLM state director, and all implemented actions would subsequently conform to the specific approved Plan decisions.
- Impacts are considered to be direct, unless otherwise indicated.
- The discussion of impacts is based on the best available data. Knowledge of the Planning Area and professional judgement, based on observation and analysis of conditions and responses in similar areas, were used to infer environmental impacts where data is limited.
- Acreage figures and other numbers used in this analysis are approximate projections for comparison and analytic purposes only. Readers should not infer that they reflect exact measurements or precise calculations.
- Changes of effects described during the life of the plan would be short term unless otherwise stated and would occur during or immediately following implementation of an action.
- Short-term impacts would occur over a 5-year period following implementation; long-term impacts would occur over a 5- to 20-year period.

Impact Topics Selected for Detailed Analysis

The major resources/topics to undergo in-depth analysis are listed below and organized by Issue sections from Chapter 2. The discussion for each resource/topic includes direct, indirect, and cumulative impacts.

1. Impacts to Air Quality

2. Impacts to Water Quality
3. Impacts to Soils
4. Impacts to Vegetation
5. Impacts to Wildlife
6. Impacts to Wilderness
7. Impacts to Livestock Grazing
8. Impacts to Wild Horses & Burros
9. Impacts to Recreation Use
10. Impacts to Motor Vehicle Access
11. Impacts to Mineral Development
12. Impacts to Cultural Values
13. Impacts to Lands and Land Use Authorization
14. Impacts to Socio-Economic Conditions

Reasonably Foreseeable Future

This section presents a scenario or assumption of constancy or changes in land and other uses and trends over the life of the plan to help guide the analysis and statement of impacts in this chapter.

Lands Actions
Little urban growth is expected in the Planning Area due to its remoteness from existing urban centers, the relatively small amount of private lands in the area, lack of infrastructure, and the relatively harsh, water-less climate. County planning departments project little, if any, significant change. Development that does occur carries a significant cost burden for infrastructure support. This development would most likely occur at existing populated centers and along freeways at exit points. Catellus Development Corporation has proposed to dispose of lands in northeast Imperial County and acquire some public lands in two other small areas, which could see some development.

Significant use of portions of the Planning Area has been made for utilities, highways, and railways crossing of the desert. Future additional lines are projected at one new major power or pipe line per established utility corridor. In is anticipated that Highway 95 between Vidal Junction and Needles (to four lanes and elevated) could be upgraded within the next 20 years. Finally, from new technologies and water conservation/demand needs there is an anticipated increase in demand for communications sites (towers and access roads) along major highways and a few groundwater storage proposals, both of which involve light development, but no permanent human presence.

Large solid waste landfills have been proposed and environmentally assessed in the Planning Area over the last several years, two of which, the Mesquite and Eagle Mountain have cleared NEPA and CEQA and could become operational in the next few years (including expansion of rail use and jobs growth). With these in place and emphasis on recycling in the region, probability of more proposals in the Planning Area is low.

Minerals
Expansion of existing and development of new gold mines has been expected to dominate the picture for many years, but recent world trends may dampen this picture. To the extent that gold continues to be mined, it will likely occur in the Chocolate Mountains-Picacho gold belt area of Imperial County. Mining here would continue to be characterized as large scale, heap-leach type operations involving disseminated gold. Known reserves are estimated to last 10 years at which time mining would dramatically tapper off. The

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Imperial Project, a proposed new gold mine in the area would have a nine-year life.

No other mining of metallic minerals is expected for years as nearly all known potential for them is in BLM wilderness areas.

Other minerals that could see new, continued and expanded development include:

- Limestone in the Big Maria, Palen and Chuckwalla Mountains of Riverside County for specialty and chemical products, however, adjacent wilderness issues may rule out the latter two sites.
- Gypsum in the Little Maria and Palen-McCoy Mountains for plaster, wallboard, and other products; however well developed and cheaper sources in the region and Mexico and lack of nearby manufacturing plants for the raw product may stifle development in the Planning Area.
- Wollastonite in the Big and Little Maria Mountains of Riverside County for porcelain glaze, filler, and whiting agent.
- Calcium chloride from evaporation ditches/ponds on Bristol, Cadiz, and possibly Danby Dry Lake beds at current levels of development. These operations are expected to remain at current levels
- Sodium chloride from evaporation ditches/ponds on Danby Dry Lake at current level of development. This operation is expected to remain at current levels.
- Sand and Gravel from historically used sites should continue and fluctuate with market conditions, highway resurfacing (involving new nearby borrow sites), and growth in nearby urbanizing valleys. Existing sites should meet market demand for the next 10 years, after which new sites may have to be developed.
- Nearby geothermal and oil and gas development is not expected to change and have an affect land in the Planning Area.

Recreation Actions

In general, the overall level of recreational use is currently low throughout the Planning Area except on a site-specific, seasonal basis. For instance, use in developed campgrounds and long-term visitor areas, as well as on lands adjacent to the Imperial Sand Dunes Recreation Area, is often moderate to high during the cooler months of the year. But as distances from concentrated use zones increases, there is generally a concomitant decrease in use. Regarding trends of popular recreation activities in the Planning Area, use appears to be neither significantly increasing nor diminishing. To the degree that nearby urban centers (Coachella, Colorado River, Imperial, and Palo Verde valleys) grow there could be a general increase in extensive uses in the Planning Area. However, off road use, resulting in routes proliferation, has not been an issue on public lands away from the edges of urban centers and is not anticipated to become one. Significant new use of BLM wilderness areas is not anticipated.

OHV use in the two established (1980 CDCA Plan) open areas, Rice Dunes and Ford Dry Lake will continue to be very low, or non-existent. On the other hand the demand for such use in the lower Chemehuevi Wash area is increasing. The annual Johnson Valley to Parker motorcycle race has not been run for several years, but could continue depending upon the outcome of plan decisions.

Upland game and deer hunting, largely a fall-winter local phenomenon that occurs in microphyll woodland washes, is not expected to increase.

Recreation uses are subject to cyclical fluctuations like other societal phenomena, but a few factors suggest the Sonoran Desert portion of the Planning Area could become increasingly popular with older Americans. These facts include: general increase in preference for natural, undeveloped settings, aging population base, increased affluence and comfort-desiring (for recreation vehicles), and mild and dry winters. Most of these people will "winter" (as many do now) for half-year durations engaging in off-highway vehicle touring, hunting, primitive camping in undeveloped sites, rock-hounding, social, and other recreation activities.

Wildfires

The spread of alien plants , especially annual grasses, creates an extraordinary potential for disastrous ecological change. Historically in the Planning Area, the occurrence of wildfires is low. As we monitor the occurrence and find problems, we may advocate and implement one or more of the following measures:

- establish one or more BLM fire stations in the Planning Area to reduce the suppression response time
- establish seasonal campfire closures
- establish mechanical or chemical control of alien plants in key areas

Military Operations

The relatively small amount (less than 1%) of CMAGR that is currently impacted due to air - ground and SEAL training operations has been in place for 15 years and is not expected to change.

Joshua Tree National Park Visitation

The vast majority of visitors to JTNP focus on the western half (outside the Planning Area); change is not anticipated in the eastern half.

General Perspective

Several broad perspectives on proposed land use decisions with comparisons by alternative are contained in Appendix O with no further reference in this chapter.

4.1 No Action Alternative

4.1.1 Air Quality

From Issue 1: Standards and Guidelines

The National Fallback standards and guidelines would promote the maintenance of the processes and functions necessary to maintain and improve healthy soil and vegetation within grazing allotments which would improve air quality from reduced particulate pollutants adjacent to allotments.

Fugitive dust emissions result from wind crossing disturbed or dry unconsolidated soil surfaces. Small reductions in movement of particulate dust would result with increased vegetative cover. Emissions rates from areas outside of grazing allotments would continue at current rates.

From Issue 2: Recovery of the Desert Tortoise

The current level of management on 189,564 acres of designated ACECs has a slight positive effect on air quality through a few prescriptions designed to reduced surface disturbance (e.g., vegetation restoration, road & wash closures).

Surface disturbing projects are evaluated on a case by case basis without a limit. Potential impacts include; surface disturbance on a larger scale and little incentive to direct projects to other less sensitive areas which potentially add particulate pollutants to the environment.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Impacts to air quality from motorized vehicles primarily occur from utilization of "open" areas and general access along routes of travel. Travel in "open" area can produce particulate matter from wind-blown dust and reduces vegetation cover which leaves soils vulnerable to wind erosion. Under current management there are two open areas in the Planning Area, Ford Dry Lake OHV area (1134 acres) and Rice Valley OHV area (2790acres).

CUMULATIVE IMPACTS
Increases in population in urban areas such as Los Angeles and San Diego generally lead to impacts to air quality from PM_{10} and CO emissions. Although development in the Planning Area has been low historically and little urban growth is expected in the Planning Area, air quality in non-attainment areas could continue to be impacted by the exportation of "urban" smog to remote regions in the desert. Additionally, PM_{10} may continue to be a problem in areas affected by surface disturbance from uses such as grazing, recreation and large soil disturbing projects.

4.1.2 Water Quality

From Issue 1: Standards and Guidelines
Implementing the National Fallback standards and guidelines would enhance and strengthen present management of grazing activities occurring in the Planning Area. This change in direction would contribute to minor improvement of water quality from natural sources. Results from recent rangeland health assessments of Lazy Daisy, Ford Dry Lake, and Rice Valley Allotments found that resource conditions meet the standards. The Chemehuevi Allotment did not meet the riparian/wetland standards due to an infestation of tamarisk and impacts from burros at West Well. Development of prescribed water (water troughs, pipe, and storage tanks) improvements in Lazy Daisy would enhance current conditions by improving cattle distribution.

There would be improvement in hydrologic function resulting in improved water quality. As uplands and riparian vegetation improve, peak runoff and overland flow would be reduced and increased riparian vegetation would protect and stabilize adjacent soils. There would be an increase in water infiltration through most soils and a decrease in sedimentation. There are no appreciable riparian and wetland areas in Chemehuevi, Ford Dry Lake, and Rice Valley Allotments and improvement in these areas would be negligible.

Current conditions and trends for water quality outside of allotments would continue at current levels.

From Issue 2: Recovery of the Desert Tortoise
Potential impacts to water resources can result from any activity which adversely affects water quality or availability in the NECO Planing Area. Such activities include livestock grazing, mining, vehicle use of roads and trails, burro grazing and surface disturbing land uses.

The current level of management on 189,564 acres of designated ACECs has a slight positive effect on water quality through a few prescriptions designed to improve water quality (e.g., removal of tamarisk, fencing of waters).

Grazing activities which occur on 605,453 acres impact water quality through coliform bacteria contamination. Additionally, water resources are impacted through soil compaction and the reduction of vegetative and litter cover that reduces infiltration and increases storm water runoff and sedimentation.

From Issue 4: Wild Horses and Burros
Burro grazing activities occur on 600,00 acres within the Planning Area and may adversely impact water quality through coliform bacteria contamination. Additionally, water resources may be impacted through soil compaction and the reduction of vegetation and litter cover that reduces infiltration and increases storm water runoff and sedimentation.

CUMULATIVE IMPACTS
Implementation of the National Fallback standards and guidelines, cumulatively with the many other state and regional initiatives to protect, enhance, and maintain ecosystem health, will result in improved rangeland health. There will be less soil erosion, improved vegetative diversity, improved livestock forage, improved upland and riparian habitats, and improved water quality.

Improvements to riparian areas will result from increased vegetative cover which will result in stabilized aquatic systems, with longer flowing streams, better water quality, protection from erosion and flooding, which will better support wildlife, livestock municipal water supplies and recreations uses.

4.1.3 Soil Quality

From Issue 1: Standards and Guidelines
Current rangeland health assessment work indicates that the soil standard has been met in the four allotments. In general, implementation of that standard would result in positive impacts to upland soils and would improve overall watershed health slowly over the long-term. This improvement would be slow and the results complex. Surface litter plays a complex role in soil health. It cycles plant and animal nutrients, reduces raindrop impact, traps mobilized sediment, insulates and moderates soil temperature, conserves soil moisture, and involved in the development of soil structure. The positive changes expected to occur to soil are; reduced soil crusting, reduced erosion, increased biological activity, increased permeability, increased root mass, increased fertility, increased soil cover, and increased soil moisture.

From Issue 2: Recovery of the Desert Tortoise
Under this alternative, range improvement development is provided by the current biological opinion, AMP, CDCA Plan, and regulations. Prescribed construction would minimally affect soil with compaction and disturbance during installation of fence, springs, wells, and cattleguard. Some compaction and disturbance of soil are expected when hauling equipment, materials and personnel to work site. Impacts to soil would be minimal and recovery would occur during the short-term. Minimal impacts from compaction would occur when cattle modify current trailing new facilities and this would be slightly offset when other trail use is reduced. Cattleguards would be placed along a fence in the road resulting in negligible impacts to the surrounding soil.

From Issue 4: Wild Horse and Burros
Burro grazing, as with livestock grazing, impacts the soil resource primarily through the reduction of vegetation and litter cover which protects soils from erosional processes and, to some degree, soil compaction that channels and concentrates storm water runoff. Burros have ranges for seasonal movements that may cover an area of 600,000 acres during a year in which plant

utilization may occur within the existing Herd Management Areas which potentially impacts soil quality.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designation
Off-road vehicle use, both competitive and casual, has potential to impact the soil resource, particularly if the activity occurs within areas with highly erodible soils. Competitive off-highway events occur on the Johnson Valley to Parker and the Parker 400 race corridors. Direct impacts from events include physical destruction of vegetation which increases soil loss from water runoff, dust and soil compaction.

Impacts from general access under the multiple-use class guidelines to soil quality are largely unknown. However, impacts from new disturbances and potential soil loss would be expected as population and demand for recreation rises.

CUMULATIVE IMPACTS
Implementation of the National Fallback standards and guidelines, cumulatively with the many other state and regional initiatives to protect, enhance, and maintain ecosystem health, will result in improved rangeland health. There will be less soil erosion, improved vegetative diversity, improved livestock forage, improved upland and riparian habitats, and improved water quality.

Specifically, improvements to the soils and uplands areas will occur slowly over decades and will affect not only upland systems components such as soil, water, vegetation, and wildlife, but also downstream components such as water quality and riparian habitat. Soil conditions, primarily soil structure, influence the movement of air, water, roots, nutrients, and soil organisms. These soil conditions strongly influence plant growth, water infiltration and runoff, and erosion.

4.1.4 Vegetation Management

From Issue 1: Standards and Guidelines
General Vegetation: Vegetation within grazing allotments would be positively affected by implementation of the four National Fallback standards. Three of the four allotments meet the standards, but at West Well in the Chemehuevi Allotment the riparian/wetland standard was not met due to infestation of tamarisk and impacts from burros to West Well. Recommended prescribed actions have been proposed and authorized by management to remedy these problems.

Under this alternative, minimal improvement is expected due to the current low level of grazing use in all four allotments. Improvement would come in the form of extended period of growth for perennial forage species in response to continued achievement of the native species standard through implementation of grazing management practices. The period for plants to recover from cattle consumption is expected to increase over the long-term. There would be benefits when biomass and vigor increase for forage plants with sustained maintenance of the standard. Continued maintenance of plant vigor would result in a corresponding short-term decrease in biomass, seed production, and seedling establishment for those species not currently consumed by cattle. Plant volume for forage species is expected to increase the greatest in Sonoran Creosote Scrub and Mojave Creosote Scrub plant communities. However, the Desert Dry Wash plant community may realize the greatest increase in forage plant volume by unit area. The increase in volume would likely increase canopy cover. There would be a benefit from increased litter for those series receiving higher rainfall. Over the long-term all perennial plants adjacent to existing range improvements would increase in volume and vigor.

Seed production and seedling establishment for forage plants would increase slightly for the short-term. Germination of perennial grass and shrubs are expected to increase in areas where viable seed is present, thereby increasing chances for potential seed production for future germination.

Significant flora expression of plant series or communities is anticipated for those communities that have not reached their potential. Benefits from an increase in vegetative diversity for all plant communities are expected. However, significant increases in diversity are expected in Sonoran and Mojave Creosote Scrub plant communities. Where communities have the potential, tree and shrub structure is expected to increase, and development of trees and shrubs for appropriate age-class distribution is expected, as well. Those species of plants and animals that seek greater plant would benefit with this change. In the long-term, plant series will reflect achievement of later seral stages of the plant community. This shift in plant communities should reflect a greater diversity of plants and animals.

Recruitment of perennial species is expected when weather permits. Removal of cattle after a favorable growing season would increase perennial grasses and shrubs. Fire frequency is not expected to change except prescribed burns utilized to increase perennial species or to improve habitat for special status species.

Construction activities that require installation of fence, troughs, pipe, storage tanks, and a corral would remove or trim vegetation in small areas, typically in or adjacent to currently denuded areas. Trimmed plants would sprout and regrowth would occur relatively quickly after construction is complete. Construction of improvements in tortoise habitat must adhere to existing direction listed in the biological opinion and Appendix C.

Trends and conditions for vegetation outside allotments would continue as currently observed.

Biological Soil Crusts: The disturbance of biological crusts by large grazing animals would affect these species. The crust's response to these disturbances varies depending on soil moisture, soil movement and compaction from the grazing animal's hooves. These allotments have been grazed for decades and continued light grazing would not produce additional changes to species diversity of the biological crust. Changes in grazing management may produce site specific impacts to biological crusts. When impacted sites are identified appropriate management action would be taken to maintain these sites. Trends and conditions for biological crusts outside allotments would continue as currently observed.

Riparian/Wetland: Riparian areas at certain spring sources within Lazy Daisy and Chemehuvi Allotments would quickly improve after treatment with prescribed actions. Conditions for all riparian/wetland areas are expected to improve over the long-term with continuous rangeland health assessments. There would be a significant increase in riparian plant species and would benefit riparian obligate plant and animal species with a reduction in occurrence of tamarisk in riparian/wetland areas. There would an increase in structure from trees and shrubs in the riparian zone. The width and length of the riparian zone following the area of moisture would increase. The plant and animal community would benefit from changes in composition of vegetative cover from herbaceous plants, shrubs, and trees. The number of age-classes for plants will increase over the long-term. As plant conditions improve, the diversity of plants and animals would increase.

There would be a slow reduction in non-riparian species in the potential wet zone.
Short-term construction related activities for water developments or fence construction for protection of riparian vegetation would temporarily disturb or remove riparian and adjacent upland vegetation. This activity is not expected to significantly affect plant communities due to the relative abundance of soil moisture.

Trends and conditions for riparian/wetland outside allotments would continue as currently observed.

Noxious Weeds: There would be a substantial decrease in specific noxious weeds that respond to management techniques. Tamarisk would be reduced in riparian and wetland areas throughout the Planning Area. Reduction of noxious weeds by increased competition from native plants would move plant series to later seral stages. As native plant species increase, plant and animal species diversity would increase and disturbed areas would decrease reducing potential weed establishment.

Short-term construction related activities for range improvements would increase soil disturbance and may increase noxious weeds at or near the disturbance. Trends and conditions for noxious weeds outside allotments would continue as currently observed.

From Issue 2: Recovery of the Desert Tortoise

Natural Communities

The existing planning environment provides a relatively high level of protection of natural communities. This results from the presence of one large National Park (JTNP) that is almost entirely designated wilderness, one large military base (CMAGR) with use restricted to a few relatively small target areas (<1% of CMAGR), and designated BLM wilderness areas (Fig. 2-4). JTNP and wilderness areas are managed specifically for natural values; disturbance of natural communities in these areas is slight. Table 4-1 shows the acres and percent of each natural community type within these areas. The following figures from the table are notable: 1) very little (4%) Desert Chenopod Scrub is in these protected areas; 2) a high proportion (102 of 140=73%) of Springs and Seeps are in these areas; 3) all Mojave Pinyon and Juniper Woodland is in these areas; and 4) no Playas are in these areas.

Table 4-1. Acres and percent of total of each natural community within JTNP, CMAGR, and BLM wilderness.

Natural Community	JTNP	CMAGR	BLM Wilderness
Sonoran Desert Scrub	408,506 (11)	323,910 (9)	1,086,547 (29)
Mojave Desert Scrub	25,273 (3)		403,619 (50)
Desert Dry Wash Woodland	52,265 (8)	132,792 (20)	77,933 (12)
Mojave Pinyon/Juniper Woodland			1,928 (100)
Desert Chenopod Scrub	76 (4)		
Springs and Seeps (no. of sites)	21 (15)	11 (8)	70 (50)
Sand Dunes	3,110 (5)		16,010 (26)

Most of the impacts to natural communities occur on private lands or on BLM non-wilderness lands. Impacts on the latter generally result from authorized activities under BLM's multiple-use mandate. Table 4-2 shows the acres and percent of each natural community within each MUC (designated wilderness is included under MUC C in the table). The following numbers from the table are notable: 1) 32 percent of Desert Chenopod Scrub is in MUC I even though it is a very rare community; 2) 64 percent of Playas is in MUC I; 3) no Desert Dry Wash Woodland and only a very small proportion of Sand Dunes (3%) are in MUC I; and 4) only one Springs and Seeps site is in MUC I.

Table 4-2. Acres and percent of total of each natural community within each BLM Multiple-Use Class: Controlled (C), including designated BLM wilderness; Limited (L); Moderate (M); and Intensive (I).

Natural Community	MUC C	MUC L	MUC M	MUC I
Sonoran Desert Scrub	1,102,310 (30)	997,962 (26)	918,388 (24)	20,045 (<1)
Mojave Desert Scrub	404,303 (51)	196,703 (24)	174,889 (22)	3,200 (<1)
Desert Dry Wash Woodland	79,462 (13)	177,471 (26)	219,833 (32)	
Mojave Pinyon/Juniper Woodland	1,928 (100)			
Desert Chenopod Scrub		677 (33)	670 (32)	655 (32)
Playas		2,692 (3)	28,689 (33)	56,683 (64)
Springs and Seeps (no. of sites)	70 (50)	31 (22)	5 (4)	1 (1)
Sand Dunes	16,059 (26)	7,246 (12)	33,940 (55)	1,766 (3)
All BLM lands in NECO	1,604,062 (**)	1,384,205 (25)	1,389,491 (25)	83,463 (2)

Impacts to large portions of the Playa community at the Ford Dry Lake and Sand Dunes community in the Rice Valley open areas are potentially significant. However, historically, OHV use has been very low at both sites and the impacts have been insignificant.

Impacts from the two cattle grazing allotments and two sheep allotments include: competition with native wildlife for forage (Heske and Campbell 1991), disruption of sensitive natural communities (especially Springs and Seeps), reduction in annual plant diversity (Waser and Price 1981), and compaction of soils. The last two effects are most severe in the vicinity of springs, water troughs, corrals and salt licks used by cattle (e.g., Sunflower Spring). The effects of grazing on ecosystems in arid lands are reviewed by Archer and Smeins (1991).

Table 4-3 shows the acres and percent of natural communities within the four livestock grazing allotments on BLM (and interspersed private) lands. All of the allotments include only a small portion of several natural communities except for the following: 1) Lazy Daisy Cattle Allotment includes all (100%) of the Mojave Pinyon and Juniper Woodland, 26 percent of Mojave Desert Scrub, and 11 percent of the Springs and Seeps; 2) Rice Valley Sheep Allotment includes 17 percent of the Sand Dunes; and 3) Ford Dry Lake Sheep Allotment includes another 8 percent of the Sand Dunes.

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Table 4-3. Acres and percent of total of each natural community within BLM grazing allotments: Lazy Daisy Cattle, Chemehuevi Cattle, Rice Valley Sheep, and Ford Dry Lake Sheep.

Natural Community	Lazy Daisy Cattle	Chemehuevi Cattle	Rice Valley Sheep	Ford Dry Lake Sheep
Sonoran Desert Scrub	118,005 (3)	129,415 (3)	57,509 (2)	33,845 (1)
Mojave Desert Scrub	207,450 (26)			
Desert Dry Wash Woodland	5,462 (1)	6,317 (1)	17,389 (3)	5,355 (1)
Mojave Pinyon/Juniper Woodland	1,928 (100)			
Desert Chenopod Scrub				216 (10)
Playas				5,269 (6)
Springs and Seeps (no. of sites)	16 (11)			
Sand Dunes			10,667 (17)	4,996 (8)
All NECO lands	332,886 (6)	137,321 (2)	85,565 (2)	49,681 (1)

Other widely disseminated activities that result in low level or localized effects on natural communities include camping, long-term visitor (camping) areas, and communication sites. Various recreational activities, such as hunting, target shooting, rockhounding, birdwatching, and rockclimbing can disturb wildlife, but have little overall effect on natural communities. Harvesting of plant parts for the dried-plant floral industry can slightly reduce plant volume in a local area, but the overall extent has been very small. The major effect of these activities is from vehicle use on roads and in washes.

The total area of all targets within CMAGR is 2,812 acres, <1% of the Range. Potential impacts within the targets include: vegetation removal from bombing, flares, and other use of targets; potential fires; and light use of roads. There is an extensive network of air corridors over the Planning Area; this could result in minor disturbance to wildlife where flights are low (Weisenberger *et al.* 1996).

Ecosystem Processes

Changes to ecosystem processes that greatly affect natural communities and vegetation include construction of roads, highways, railroads, aqueducts, agriculture, urban development, fencing, and large projects. These barriers restrict movements of animals and can disrupt gene flow of both animals and plants.

Special Status Plants

Similar to the natural communities, the existing planning environment provides a relatively high level of conservation for many special status plants. Table N-1 Appendix N shows the acres and percent of the potential range (number of sites for some species) of each special status plant within these JTNP, CMAGR, and BLM wilderness, management entities with a high level of surface protection and a very low level of use. The table shows that 24 of the 32 special status plants occur in one or more of these areas. For 5 of the 32 (red grama, saguaro, crown-of-thorns, Robison's monardella, and Munz' cholla), more than 80 percent of the range is in these areas. For 12 of the 32 (the previous plus Los Animas colubrina, California ditaxis, spearleaf, Arizona pholistoma, Orocopia sage, Coves' cassia, and Mecca-aster), more than 50 percent of the range is in these areas. And for 20 of the 32, more than 30 percent is in these areas. Only 8 of the 32 plants species do not occur in these areas.

Coachella Valley milkvetch, the only federally listed plant in the NECO Planning Area, is found at one site in JTNP and two sites BLM-administered lands, in MUC L (Map 3-7b Appendix A). These sites are protected by policies that listed plants and their habitat, to the extent known, will be avoided by projects. At a minimum, mitigation measures would be developed in coordination with USFWS and approved by them through formal consultation under Section 7 of the Endangered Species Act. The two BLM sites are not in a utility corridor, not in a livestock grazing allotment, and not in a burro HMA. Off-road travel by vehicles could effect any of the three populations.

Most impacts to special status plants occur on private lands or on BLM non-wilderness lands. Impacts on the latter generally result from authorized activities under BLM's multiple-use mandate. Table N-2 Appendix N shows the acres and percent of each special status plant within each BLM MUC. Class C includes designated wilderness. A considerable portion of the range of some special status plants is in Class C and wilderness; this has been addressed immediately above.

It is significant that 19 percent of the range of angel trumpet, 28 percent of Harwood's rattleweed, and 100 percent of the sites for giant Spanish needle are on Unclassified lands. These lands are planned for disposal into private ownership; development would presumably follow such a transfer.

Table N-3 Appendix N shows the acres and percent of the range (number of sites for some species) of each special status plants within the four livestock grazing allotments on BLM (and interspersed private) lands. The most significant are crucifixion thorn with 61 percent of its range in the two cattle allotments (not eaten by cattle), lobed ground-cherry with 41 percent of its range in the Lazy Daisy Cattle Allotment, glandular ditaxis with 21 percent of its range in the Chemehuevi Cattle Allotment, foxtail cactus with 14 percent of its range in all four grazing allotments, and desert unicorn plant with 10 percent of its range in all four allotments. The reminder of plants wither do not occur or have less than 2 percent occurrence in grazing allotments.

Both sheep and cattle can eat special status species. Of the 5 special status plants listed above, crucifixion thorn and foxtail cactus are not eaten by livestock, but the other three might be eaten (Jessica Walker, Botanist, BLM, pers. comm.). Livestock can also trample special status plants. They can damage habitat by compacting soils, reducing cryptogamic crusts (Brotherson *et al.* 1983), reducing annual plant diversity (Waser and Price 1981), and altering other soil water and chemical characteristics; these impacts can lead to elimination of sensitive plant species (Kleiner and Harper 1977). The greatest effects of trampling and soil compaction occur at water troughs, corrals, and salt licks. All but the Lazy Daisy Allotment receive very low, infrequent use, as described earlier.

From Issue 4: Wild Horse and Burros

Vegetative plant communities vary throughout the HMAs which burros utilize for forage and cover. Key forage areas are typically located near water sources where herds would congregate, especially during the dry season. If populations are maintained at appropriate levels in these areas, more than adequate forage is expected to exist for that population level throughout the remainder of the HMA. Monitoring utilization levels determine if the level of use is within the proper use factor for that key species. If the utilization levels exceed the proper use factor, the plant species are considered to be adversely affected. Areas which have overlapping use by grazing ungulates are most susceptible to overgrazing. Various degrees of foraging behavior by burros on shrubs can be seen. Two examples are bark stripping of ocotillio (*Fouquieria splendens*) and a well developed browse line on palo verde (*Cercidium sp.*). Although these impacts to these plant species are not detrimental to their existence, they do act as indicators as to the level of activity occurring in the area.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

The low-level, dispersed recreation use in the Planning Area results has a relatively low impact to habitats and rare plant species. Table N-4 Appendix N shows the average number of miles of roads per square mile in each natural community type. The total for all of NECO is .61 miles per section (or 22 miles per township). These figures represent an 18% reduction in the miles of "open" routes, which includes closures created by the CDPA and proposed in NECO (see section 2.5). Even without the NECO proposals the numbers are small due to historical low use and large areas dedicated to low impact uses.

In spite of the above analysis roads, by their very nature, have low vegetative cover and compacted soils. Although the size of the disturbed area may not be significant in itself, there are a variety of other effects of vehicle use that add to the significance. Among these are the following:

- Introduction and spread of exotic plants;
- Alterations in surface water flow and percolation, especially where the roadbed is not at grade level (the overall effect may be to increase overall plant height, plant biomass, and foliage arthropods through "water harvesting" adjacent to compacted roadbeds [Johnson *et al.* 1975, Vasek *et al.* 1975b];
- Loss of native vegetation due to associated camping along routes;

Table 4-4 does not include washes in areas where navigable washes may be driven. Use of washes has similar effects to roads but also may result in loss of native vegetation in the wash or in adjacent areas as drivers leave the wash or "search" for alternate washes. Navigable washes have not been identified and, hence, the quantity is difficult to assess. However, driving in washes occurs mostly in Desert Dry Wash Woodland, which has a relatively high animal species richness. Most of the driving in washes occurs in the southern half of the Planning Area in November through April.

Table 4-4. Average number of miles of road (not including navigable washes) per square mile in each natural community.

Natural Community	mi. of road/mi^2
Sonoran Desert Scrub	.566
Mojave Desert Scrub	.610
Desert Dry Wash Woodland	.888
Mojave Pinyon/Juniper Woodland	0
Desert Chenopod Scrub	2.121
Playas	.357
Springs and Seeps	N/A
Sand Dunes	.197
All NECO lands	.611

Impacts to large portion of the Playa community at the Ford Dry Lake and Sand Dunes community in the Rice Valley open areas are potentially significant. Historically, OHV use has been low at both sites and the impacts have been insignificant.

There are few recreation centers and campgrounds in or near the Planning Area to support recreation. Long-term winter visitors have been encouraged to congregate in local towns or camp in one of three long-term visitor areas (LTVAs). This has considerably reduced the incidence of random, dispersed camping which could have the potential to impact hundreds of acres of vegetation over a long period through crushing and disposal of wastes. The reduction of impacts from dispersed camping is off-set by the amount of area devoted to the LTVAs: 3066 acres for Midland and Mule Mountain LTVAs which are in or near proposed DWMAs.

The Johnson Valley to Parker and Parker 400 routes would remain designated for competitive racing - i.e., high speed, competitive off-road vehicle events and accompanying spectator uses at pits and finish areas. This activity, while confined to traditional route alignments and areas - and in spite of design and stipulations - does result in soil compaction and erosion, widening of existing roads and trails, creation of new roads and trails, and increased direct mortality and harassment of wildlife. In spite of land use decision in all likelihood the Parker 400 is no longer viable due to certainty of a finding of jeopardy opinion (desert tortoise) by the FWS and the fact that the event no longer has promoter interest. Retaining the MUC criteria for new race routes means that new route alignments could be created. While the opportunity for application is limited and would almost certainly have to be addressed in an EIS, potential impacts could be significant.

CUMULATIVE IMPACTS

General Vegetation

The existing planning environment provides a relatively high level of protection for vegetation communities in the Planning Area. This is due to the large portion of the Planning Area that is in Joshua Tree National Park, wilderness areas, BLM ACECs, and Chocolate Mountains Aerial Gunnery Range. Implementation of the Rangeland Health Standards and Guidelines for livestock grazing will positively benefit vegetation communities to a small degree because grazing levels are low in the four grazing allotments and only occasional in three of the four.

Most surface disturbing activities result from authorized activities such as utility installation, communication sites, and mining. Historically, most mining activity in the Planning Area was small in size. In recent decades, several large mines occupying several thousands of acres have been developed in the southern part of the Planning Area. Effects of mining are most significant on rare communities such as Playas and Desert Dry Wash Woodland in the Planning Area.

Invasions of exotic plants, especially the widespread conversion from native perennial grasses and forbs to alien annual grasses may disrupt community associations. Changes in insect consumption, seed dispersal, and pollination will continue to alter plant community species composition. Increases in fires carried by alien annual grasses may also effect plant community species composition.

Casual use impacts are low. Visitation is low and seasonal and concentrated in LTVAs. Casual use in open dunes and playas is very low, but heavy use could be impacting tho them and adjacent Desert Chenopod Scrub communities. The proposal designation of routes would (along with the effects of the CDPA in 1994) reduce the total length of roads by 18%.

Where Dune and Playa vegetation communities are open for vehicle cross-country travel, these vegetation communities as well as Desert Chenopod Scrub communities adjacent to playas may be altered and even eliminated totally.

Burro grazing and trampling of vegetation in the southern part of the Planning Area is heavy. Burros are above carrying capacity and have expanded outside of herd management areas.

Special Status Plants

Most special status plants are receiving few, if any, impacts. However, inventories are not thorough, and the actual distribution of each species is poorly known. Generally, surveys for special status plants are conducted prior to project authorization, and avoidance of plants is standard.

Only five special status plants have more than 2 percent of their potential range in grazing allotments. Two of these are not eaten by cattle. Increases in fires carried by alien annual grasses may affect most special status plants, most of which are not fire-adapted.

Biological Crusts

Due to the low level of surface disturbing activities in the Planning Area, biological crusts should be in good condition. In the four grazing allotments, there may be some disturbance from hoof action; this would be most severe near and at water sites and along trailing areas. The effect of the conversion of ground cover from native perennial grasses and forbs to alien annual grasses is not known. Increases in fires carried by alien annual grasses may affect biological crusts over large areas.

Riparian/Wetland

The few riparian and wetland areas are receiving minimal disturbance except in the southern part of the Planning Area where burro populations exceed carrying capacity. Trampling at water sources has disturbed riparian and wetland vegetation at these sites.

Elsewhere, most springs and small streams are in mountains in designated wilderness areas; associated riparian and wetland vegetation is undisturbed. However, tamarisk infestations at springs and seeps has degraded some sites.

Noxious Weeds
Over large areas of the California Desert, including the Planning Area, alien grasses have replaced native perennial grasses and forbs. The overall effect of these large scale conversions on plant communities is unknown. Noxious weeds are known to invade new areas along roads and at disturbed sites. The potential for invasion of new noxious weeds remains high.

In addition, non-native tamarisk trees have replaced native riparian communities along rivers and streams and even at springs throughout the West. Due to the scarcity of flowing streams, tamarisk infestation has occurred primarily at springs in the Planning Area. There has been some effort expended on eradication at these sites.

4.1.5 Wildlife Management

From Issue 1: Standards and Guidelines
The National Fallback standards and guidelines would promote the ecological function and processes necessary to maintain and improve special status species habitats on the four grazing allotments. Since species would be considered in meeting rangeland health standards, livestock grazing practices would be designed to promote the conservation and recovery of listed species. More specifically, increases in plant vigor, biomass, and seed production will provide increased food for animal communities. Increases in plant cover and litter will provide increased shelter for animals against weather and predation. These effects may be most direct for invertebrates, but abundance would result.

Increased plant diversity, especially in the shrub and tree layers will increase animal diversity by providing increased plant community structure improvements in structure, diversity, and size of riparian habitats will be especially effective in increasing animal diversity and sustaining migratory bird populations.

Since native animals, especially insects, have evolved with native plant communities, reducing noxious weeds, such as tamarisk in riparian habitat, and prevention of the introduction and spread of new noxious weeds will aid in increasing or maintaining animal diversity and abundance.

From Issue 2: Recovery of the Desert Tortoise
Desert Tortoise
The following description of impacts is not exhaustive, but highlights the more significant impacts. For a more complete description of activities affecting desert tortoise, see *Current Desert Tortoise Management Situation in Northern and Eastern Colorado Desert Planning Area*.

Overall BLM policy for management of desert tortoise habitat is set forth in *Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan*. It was signed in 1988. BLM habitat categories (I, II, and III) are established in this document. The California Statewide Desert Tortoise Management Policy established more specific tortoise habitat management policies for California and developed the map of tortoise habitat categories.

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More than a million acres of critical habitat (47%) in Federal ownership are withdrawn from various uses for special purposes (Table 4-5). The withdrawals for CMAGR, JTNP, and wilderness restrict public access and uses, and they provide a high level of protection for desert tortoise habitat. Additional tortoise habitat not designated as critical habitat is also in these withdrawals; especially where contiguous with critical habitat, these areas add to the total tortoise habitat overall receiving a high level of protection. The other withdrawals primarily restrict disposal of the lands from Federal ownership.

In addition, the BLM has several ACECs (Map 2-1 Appendix A) that are entirely within desert tortoise critical habitat. However, only the Chuckwalla Bench ACEC was designated for protection of rich natural communities and important tortoise habitat. It includes about 101,674 acres of tortoise habitat. It established priorities for land acquisition (much accomplished), designated routes of travel, developed interpretive signing and brochure, and limited camping to within 100 feet of open routes. The BLM also has six habitat management plans (Map 2-1 Appendix A); however, only the Milpitas Wash HMP contains measures addressing desert tortoise habitat needs.

The most significant effects on desert tortoise arise from activities on private lands and on multiple-use activities authorized mostly on BLM lands.

About 328,000 acres (16%) of desert tortoise critical habitat lie within utility corridors. Strong mitigation measures, including compensation, are applied to utility construction and maintenance projects. Nevertheless, even after restoration efforts are made, there is a residual habitat disturbance resulting in loss of food and cover for tortoises. For most utility lines there is a service road that is open to the public. Pipelines create the largest and most severe and longest lasting disturbances. Utilities probably do not significantly fragment tortoise populations, as tortoises can move freely over level, disturbed surfaces.

Table 4-5. Acres (and percentages) of Federal lands in critical habitat that are withdrawn from multiple-use; the portion of JTNP outside of critical habitat is shown, also.

Withdrawal	Acres in critical habitat	Percent of critical habitat	Percent of Planning Area
CMAGR	187,988	8	3
JTNP inside critical habitat[1]	161,691	7	3
JTNP outside critical habitat[1]	283,760	12	5
BLM wilderness	434,233	19	8
PLO 5224 (BLM)	1,570	<1	<1
Classification and Multiple Use Act (BLM)	4,283	<1	<1
BLM Acquired Lands (non-wilderness)	23,513	1	<1
TOTAL IN NECO PLANNING AREA	1,097,038	47	20

1. In addition to the national park withdrawal, most of Joshua Tree National Park is also designated wilderness.

The Colorado River Aqueduct (Map 2-1Appendix A) is operated by the Metropolitan Water District. The major effects of the canal are 1) impeding of the movements of animals, 2) altering of surface water flow patterns across syphons using dikes, 3) and potential flooding of water-wasting zones (open desert areas owned by Metropolitan Water District where water is diverted in the event there is a need to drain the Canal).

The effects of grazing use on desert tortoise and on desert tortoise critical habitat in all four of the allotments has been reviewed by USFWS through formal consultation according to procedures set forth in the Endangered Species Act. Grazing in these allotments has special stipulations to protect desert tortoise . None of the four allotments has an allotment management plan.

The Chemehuevi Allotment includes a substantial amount of the Chemehuevi Critical Habitat Unit. However, the allotment has only a few head of cattle at most (about 15), and it has had none since 1989 (see Table 3- 7 grazing). The one developed livestock water is not in critical habitat. Based on this history of grazing use, effects of grazing in this allotment are not significant.

The Lazy Daisy Cattle Allotment covers 260,025 acres (11%) of critical habitat, all within the Chemehuevi Critical Habitat Unit. Grazing use of this allotment has been light to moderate for the past 15 years (Table 3-7 grazing). Although cattle are in the allotment year-round, the general pattern of use is that cattle forage in tortoise habitat in Ward Valley and Clipper Valley primarily in the winter and spring; the cattle move into the cooler Old Woman Mountains in the summer. There are currently nine watering sites in tortoise critical habitat; two new watering sites were approved in the biological opinion for this allotment.

The impacts of cattle grazing can include the following: 1) competition for forage (Avery 1998); 2) trampling of tortoise burrows (Avery 1998); 3) changing of plant composition, density, and cover (Avery 1998, Blydenstein *et al.* 1957, Waser and Price 1981); and 4) compaction of soils.

Competition for forage is possible because of the overlap of diets (Avery 1998). This potential is increased since cattle are in tortoise habitat in the spring when annual vegetation that tortoises require is available. Since the Lazy Daisy Allotment is an ephemeral/perennial allotment, a special authorization could be made for ephemeral (annual plant) forage in years when forage exceeds 350 pounds/acre. Although cattle could increase in numbers then, the abundance of forage would reduce the significance of such an increase to tortoises. The greatest effects on tortoises are probably in poor annual plant years when cattle will eat even the small amount of annual plant forage available (Avery 1998).

Removal of vegetation cover can reduce the capability of tortoises to thermoregulate and to find protection from sun or wind. Avery (1998) observed the trampling of tortoise burrows and the entrapment of a live tortoise, potentially leading to death. Compaction of soils, most pronounced around springs, water troughs, corrals, and salt licks, can limit tortoises in their selection of burrowing sites.

Highway traffic has been, and continues to be, an important cause of mortality for the desert tortoise (Berry and Nicholson 1984). In addition to direct mortality, roads cause habitat fragmentation and restriction of movements and gene flow. Roads also provide increased access to remote areas for illegal collection and vandalism of plants and animals (Nicholson 1978, Garland and Bradley 1984, Boarman and Sazaki 1996, Jennings 1991).

Closing some roads following the criteria noted in section 2.5 will benefit the tortoise through reduced vehicle mortality and illegal collection. The proposed "open" road designations would result in 24 miles per township (36 sections) for all critical habitat, not counting areas of "open" washes systems.

The Border Patrol conducts a large illegal alien interdiction program in the southern half of the Planning Area. The two major migration arteries are the Southern Pacific Railroad and Highway 78 corridors. Most agents work in vehicles primarily on highways and major service roads, but occasionally they give chase off these roads onto smaller desert roads, in washes, and cross-country. Some alien rescues require off-road travel as well.

Mining exploration and development activities can result in a direct loss of habitat and direct mortality from equipment and vehicles. The BLM has consulted with the USFWS on small (<10 acres) mining operations; a programmatic biological opinion provides standard stipulations for protection of tortoise and their habitat. The map of high mineral development potential (Map 4-2 Appendix A) shows that only sand and gravel has a significant occurrence and potential for development within tortoise critical habitat (about 25,000 acres).

Various illegal activities occur despite the best efforts of rangers and visitor services staff to provide law enforcement and public education. Among the illegal activities affecting desert tortoise are the following:

1) Collecting of tortoises for pets or other uses;
2) Shooting of tortoises;
3) Collecting of vegetation, especially cactus and ocotillo;
4) Dumping of refuse, car bodies, and hazardous waste;
5) Salvaging of scrap metal from bombing;
6) Methamphetamine manufacturing; and
7) Illegal immigration.

Except for shooting (see Berry 1986), the significance of most of these relative to other impacts on tortoises is not known. Most of these activities result in off-road travel, resulting in additional surface disturbance. Those activities involving illegal animal or plant removal disrupt community structure and ecosystem processes.

Desert tortoises, particularly hatchlings and juveniles, are preyed upon by several native species of mammals, reptiles, and birds. Predation by the common raven (*Corvus corax*) is intense on younger age classes of the desert tortoise. Common ravens are found in greatest concentrations in and near agricultural and urbanized areas(Knight *et al.* 1993). Particularly large concentrations are found near Cadiz where they make heavy use f the grape and citrus orchards (Knight 1994). Away from this area, ravens are most abundant near landfills and along major highways where roadkills and trash augment food supplies (FaunaWest Consultants 1990).

Between 1968 and 1992, raven populations in the Sonoran Desert increased more than 1400 percent (Boarman and Berry 1995). Since 1991, evidence of excessive raven predation on juvenile and hatchling tortoises has been found at eight sites - four in Ward Valley, two in Chemehuevi Valley, one in Shaver Valley, and one in northern Chuckwalla Bench (Boarman, unpubl. data). As part of a two-year experimental raven control program, eight ravens with three or more tortoise shells beneath their nest were shot. Two each were in Ward Valley, Chemehuevi Valley, Shaver

Valley, and Chuckwalla Bench. There is currently no active raven management program in the NECO Planning Area.

The regional landfill at Eagle Mountain near Desert Center and Mesquite near Glamis, will have a raven management program implemented. There are also local solid waste landfills authorized at Indio Hills, Blythe, Desert Center, and Picacho. These facilities employ methods to limit raven foraging. Illegal dumping sites are known at Essex, Vidal, Vidal Junction (two sites), Amboy, and Chambliss; these sites vary in their use.

Upper respiratory tract disease (URTD) has contributed to high mortality in the western Mojave Desert. URTD and various shell diseases are known to occur in the northern and eastern Colorado Desert areas. Assessments of permanent study plot sites in Chemehuevi Valley and on Chuckwalla Bench have shown population declines as high as 90 percent over the past decade. Shell diseases are implicated as a major factor. The causes of these diseases have not yet been identified.

Repeated fires are known to decrease the perennial plant cover and to aid some alien annual plans. Some alien plants provide fire fuel to carry lames, potentially resulting in larger fires in the future.

Special Status Animals

Most special status animals benefit from the policies established in the Rangewide and Statewide tortoise policies and from the management actions established to protect desert tortoise habitat. Most significant are those policies limiting surface disturbing activities or requiring compensation for disturbance of habitat. In consultation with the USFWS and CDFG, the BLM and project proponents develop stipulations to mitigate the effects of projects on desert tortoise or its habitat. The resulting "terms and conditions" in the USFWS biological opinion provide mitigation measures beneficial to other elements (e.g., special status animals) in the ecosystem on which the desert tortoise depends.

From Issue 3: Management of Special Status Animals and Plants and Natural communities

Bighorn Sheep

The existing planning environment provides a relatively high level of protection for many special status species. The major elements in this protection are JTNP, CMAGR, and BLM wilderness. None of these were designated specifically for protection of bighorn sheep, but all three restrict activities to a low level of human disturbance and habitat modification. Table 3-4 Chapter 3 shows the acres and percent of the "occupied range," "unoccupied former range," and "movement corridor" (see Map 2-18 Appendix A) in these three areas. A total of 75 percent of the occupied range, 48 percent of the unoccupied former range, and 40 percent of the movement corridors are in these protected areas.

Five HMPs developed for management of bighorn sheep cover 548,000 acres. HMPs are generally limited by the Multiple-Use Class designation of the area.

Cattle potentially affect bighorn sheep by competing for forage, by altering the vegetation composition, by introducing diseases, by fouling or disrupting water sources, or by causing changes in behavior or habitat use. A variety of papers (Bodie and Hicks 1980, Dodd and Brady 1986, Cunningham and Ohmart 1986, Ganskopp and Vavra 1987, Ganskopp 1983, King and Workman 1984, Kornet 1978, McCullough *et al.* 1980, McQuivey 1978, Seegmiller and Ohmart

1981, Wehausen and Hansen 1986, Wilson 1968, and Wylie and Bates 1979) dealing with livestock impacts have given mixed results; McCarty and Bailey (1994) summarize what is known on the subject.

Wehausen and Hansen studied competition between bighorn sheep and cattle (Lazy Daisy Allotment) specifically in the Old Woman Mountains (and other nearby ranges). They found that there was a spatial separation of bighorn sheep and cattle. Bighorn sheep, especially ewes, used mostly water sources not used by cattle. Cattle reportedly trampled and over grazed vegetation around waters, fouled the water with mud, feces, and urine, and dominated the site through long-term attendance. However, they concluded that habitat separation was most likely due to differences in habitat preferences between bighorn sheep and cattle rather than avoidance of cattle by bighorn. They did conclude that cattle were likely a significant reservoir for diseases and that bighorn sheep demography (population age and sex structure) was likely affected; nevertheless the bighorn sheep population appeared stable. They recommended that the boundaries of the allotment be modified to remove overlap, as indicated in the CDCA Plan.

Citing Wehausen (1988) and Clark *et al.* (1985), Bleich *et al.* (1990) asserted that the Old Woman Mountains deme had been "depressed during the 1980s, possibly because of a high prevalence of cattle disease." Bleich *et al.* (1990) stated that augmentation of the Iron Mountains deme was not attempted because diseased bighorn sheep occasionally move south into the Iron Mountains. They emphasized the hazard of transmission of disease from cattle to bighorn sheep in movement corridors, also. Jessup (1985) asserted that cattle may be the source of most diseases of bighorn sheep; he concluded that "at present, the best management strategy is to maintain bighorn herds at optimal nutritional planes, at or below carrying capacity and as widely separated as possible from domestic livestock."

In his follow-up studies, Wehausen (1988, 1990) compared bighorn disease epidemiology and bighorn demography between the Old Woman Mountains and other nearby demes. Wehausen (1988) found that cattle disease in the Old Woman Mountains had its greatest effect in excessive lamb mortality which could lead to long term population declines. He found that population declines were broken during droughts when populations of gnats, the transmission vectors for bluetongue and epizootic hemorrhagic disease, were low. He believed that the Old Woman Mountains deme would be much larger without grazing. He also found an instance in the Old Woman Mountains where cattle so severely degraded a natural spring that bighorn use was terminated (Wehausen 1990).

Table 4-6 shows the acres and percent of the "occupied range," "unoccupied former range," and "movement corridor" in the four livestock grazing allotments (Map 2-5 Appendix A). None of these allotments has an allotment management plan.

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Table 4-6. Acres and percent of area for three categories of bighorn sheep use in livestock grazing allotments in the NECO Planning Area.

Bighorn sheep use categories	Lazy Daisy Cattle	Chemehuevi Cattle	Rice Valley Sheep	Ford Dry Lake Sheep
Occupied Range	125,644 (7)	2,643 (<1)		
Unoccupied Former Range			195 (<1)	
Movement Corridor	105,438 (18)	61,942 (10)		

The forage base has been altered significantly with the invasion of exotic plants, especially Mediterranean grass (*Schismus* spp.). Changes in plant composition in bighorn sheep range and the effects on bighorn diet are not known.

The implication of currently in place waters in bighorn sheep habitat, both natural and artificial, is that they insufficiently address the goal of introducing bighorn sheep to usable forage. Assuming a limit of 3 miles foraging radius from waters and that all these waters continuously function (which is not the case), about 48% of the forage in bighorn sheep range is generally unavailable. South of I-10 the figure is 35%.

To reestablish lost demes and increase metapopulation viability, demes have been reestablished in the Whipple Mountains and have been augmented in the Sheephole Mountains and Chuckwalla Mountains. Lost demes remain in the West Riverside Mountains, Riverside Mountains, Big Maria Mountains, Little Maria Mountains, McCoy Mountains, Mule Mountains, Palo Verde Mountains, and Cargo Muchacho Mountains (see Map 2-17 Appendix A). Bleich *et al.* (1990) considered reestablishment of lost demes to be an important and cost-effective tool in maintaining genetic variation and minimum viable population size.

CDFG has conducted extensive inventory and monitoring surveys for bighorn sheep demes for several decades. CDFG has also conducted or sponsored bighorn sheep research on a variety of topics (e.g., Andrew 1994; Berbach 1987; Bleich 1993; Wehausen and Hansen 1986; Wehausen 1988, 1990; Torres 1994).

Military aircraft activities within CMAGR potentially disturb bighorn sheep and disrupt activities. Weisenberger *et al.* (1996) found that bighorn sheep responded to aircraft overflights with increased heart rates and altered behavior; however, animal response decreased with increased exposure. It is likely that bighorn sheep around CMAGR have habituated to the aircraft activity

Other Special Status Animals

The numerous special status animals vary in their respective sensitivity to the complex of impacts occurring. The following description of impacts is not exhaustive, but rather is intended to highlight the more significant impacts based on current and projected levels of human activity. The impacts that are described for natural communities (see Section 4.1.4 Vegetation Management, Issue 3 under natural communities) will affect individual species, also, through changes in habitat or disruption of natural processes.

The existing planning environment provides a relatively high level of protection for many special status animals. The major elements here are JTNP, CMAGR, and BLM wilderness. None of these were designated specifically for protection of these special status animals, but JTNP and wilderness were designated for natural values. Table N-4 Appendix N shows the acres and percent of the range of each special status animal that is in these protected areas. Most species have 25-50 percent of their range in these areas. Notably, pocketed free-tailed bat and western mastiff bat have more than 70 percent of their ranges in these areas, while Gila woodpecker, yellow warbler, flat-tailed horned lizard, and mountain plover have little to none of their range in these areas. In addition, special status animals presumably receive some benefit from the measures applied by BLM to desert tortoise critical habitat (Map 3-5 Appendix A) and BLM designated Categories I and II habitat (Map 2-3 Appendix A).

Several ACECs have been developed for protection of special habitats; some of these include habitat used by special status animals. Among these ACECs are Corn Springs ACEC (2,500 acres), Chuckwalla Valley Dune Thicket ACEC (2,300 acres), and Chuckwalla Bench ACEC (103,000 acres). ACEC plans have been implemented for each of these areas. In addition, the Milpitas Wash Habitat Management Plan (180,000 acres) was developed in 1985; it includes habitat for desert tortoise, burro deer, Couch's spadefoot toad, and several special status birds.

Table N-5 Appendix N shows the acres and percent of the ranges of each special status animals within utility corridors. These figures include the entire corridor length and width, even though the amount actually occupied by facilities is much less.

Table N-5 Appendix N shows that 25 of 29 special status animals have more than 10 percent of their range within a utility corridor and seven have more than 20 percent. Although the flat-tailed horned lizard has 73 percent of its range in a utility corridor, the actual amount of acreage is small for that species, and the acreage is not in any of five designated "Management Areas" for that species. The impacts of utilities vary greatly based upon type, design, operation, and maintenance. All result in some habitat loss, with pipeline construction being the most severe. With above ground structures, transmission lines have significant other effects by providing nesting and roosting sites for birds; however, none of the special status animals are known to commonly use transmission line towers.

Impacts of livestock grazing on particular species are not known. However, the stocking rates and frequency of use rates are so low for Chemehuevi, Rice Valley, and Ford Dry Lake Allotments that grazing likely has little effect on species in those allotments. Bendire's thrasher has 19 percent of its range in the Lazy Daisy Cattle Allotment; however, specific impacts of cattle grazing on that species have not been identified. Table N-6 Appendix N shows the acres and percent of the range within grazing allotments for each special status animal. Twelve of 29 species have more than 10 percent of their range within an allotment.

Aqueducts and railroads may function as barriers, also. On the western edge of the Planning Area, the Coachella Canal, in particular, and its fences provide a barrier to westward movement of burro deer. Prior to fencing and the development of water sources, there was significant deer mortality in the Coachella Canal.

Impacts of vehicle use of minor routes and washes is most important at locations where critical animal activities occur. Among these are nesting, nursing and watering sites. The following critical sites/activities for specific species or species groups are generally fixed or predictable over time:

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Bats - Caves and mines used for nurseries, winter hibernacula, and summer roosts;
Burro deer - Water sources;
Hawks and falcons - Eyries (cliff nests).

Vehicular activity near these sites at the proper season could disrupt vital life functions and affect population status.

Sites for nesting or rearing of young for special status animals are more evenly spread out in suitable habitat within the range of the species. Notwithstanding this, due to specific habitat requirements, suitable habitat for the following species is very limited even though the range may be extensive: Mountain plover (playas and flats near agriculture), elf owl (riparian), Gila woodpecker (riparian), vermilion flycatcher (riparian), yellow warbler (riparian), Colorado Desert fringe-toed lizard (sand dunes), Mojave fringe-toed lizard (sand dunes), and Couch's spadefoot toad (flooded impoundments in washes). Routes within suitable habitat for these species may disrupt critical activities during certain times of the year (e.g., nesting, breeding).

Small scale mining activity can be important if it occurs at a critical site as described above. Seasonal restrictions on mining operations can sometimes effectively mitigate the impacts near a cave, mine shaft, water source, eyrie, riparian zone, dune, or playa. The reopening of small mines can disrupt bats that have become established inside. Effects may be difficult or impossible to mitigate effectively if bat critical activity occurs year-round in the mine.

Large mines may disrupt animal activity, including critical activity, over a larger area. The overall effects would depend upon the habitats to be disturbed and the species present. Even with large mines, effects are likely to affect animal populations only locally, and the greatest significance would still be at the critical sites listed above.

Other widely disseminated activities that result in low level or localized effects include camping, long-term visitor (camping) areas, and communications sites. Special status animal populations may be disturbed near these activities, but effects are not likely to be significant except at a critical site as listed above. In addition, the number of bird collisions with communication towers has been increasing nationwide, and there is concern that the level may actually effect some bird populations. Effects are probably greatest on birds that migrate at night.

Desert washes are subject to recreation use by campers and off-highway vehicle enthusiasts, both activities can cause disturbance to plants and wildlife and lead to habitat degradation. At times, off-highway vehicles stray from the wash bottoms, breaking down wash banks which results in crushing of burrows and vegetation. Noise from vehicle travel can disturb sensitive species such as birds and bighorn sheep.

Recreational activities, such as hunting, target shooting, rock-hounding, birdwatching, and rock-climbing can disturb special status animals. Again, effects are probably only significant at critical sites.

Collecting of animals for pets or other uses could have local effects on the populations of some special status animals, such as rosy boa (especially along low-volume, paved highways). Collection of prairie falcon fledglings by falconers, poaching of deer, and illegal shooting of other wildlife (Berry 1986) are known to occur, but the amount and significance is not known.

European starlings, an introduced species that is found throughout the U. S., is not well adapted to the desert. However, it may be found at riparian areas (e.g., Corn Springs) where it may displace elf owls and Gila woodpeckers (and others) from nest cavities in saguaros, cottonwoods, and other trees.

Military aircraft activities within CMAGR potentially disturb burro deer and other special status animals and disrupt their activities. Weisenberger *et al.* (1996) found that deer (and bighorn sheep) responded to aircraft overflights with increased heart rates and altered behavior; however, animal response decreased with increased exposure. It is likely that deer around CMAGR have habituated to the aircraft activity.

From Issue 4: Wild Horses and Burros

Desert Tortoise

Impacts from the two burro Herd Management Areas (Table 4-7) in tortoise critical habitat include: burrow trampling, competition for forage and degradation to habitat through reduced biomass and plant cover (Kleiner and Harper 1977). However, burro use in critical habitat is low and intermittent. The Piute Mountain HA, entirely in critical habitat, currently has an estimated 37 burros even though the target management level is 0.

Table 4-7 Acres and percent of critical habitat for three burro herd areas (HAs) and associated herd management areas (HMAs) and burro concentration areas (CAs).

Desert Tortoise	Piute Mountain		Chemehuevi			Chocolate/Mule Mtns		
	HA	CA	HA	HMA	CA	HA	HMA	CA
Critical Habitat	39,781 (2)	6,828 (<1)	128,866 (6)	175,347 (9)	none	128,866 (6)	175,347 (9)	147 (<1)

Bighorn Sheep

Populations above AML can result in overgrazing of forage (Hanley and Brady 1977; Douglas and Norment 1977, Elliot 1959, McQuivey 1978), grazing outside of the HMA, and damage to water sources needed by bighorn sheep (Weaver 1959). Some research has shown that bighorn sheep avoid water sources used or occupied by burros (Dunn and Douglas 1982). Although some springs have been fenced to exclude burros (but not bighorn), others may be impacted from trampling of soil, denudation of vegetation, and fouling of the waters. Seegmiller and Ohmart (1981), Ginnett and Douglas (1982), McMichael (1964), Walters and Hansen (1978), and many others have found a large overlap in diet of bighorn sheep and burros; where burro populations are above forage carrying capacity, competition would be expected. Table 4-8 shows the acres and percent of the "occupied range," "unoccupied former range," and "movement corridor" in three burro herd management areas (Map 2-25 Appendix A).

Table 4-8. Acres and percent of area for three categories of bighorn sheep use in burro herd management areas in the NECO Planning Area.

Bighorn sheep use categories	Piute Mountain HA	Chemehuevi HMA	Chocolate/Mule Mtns HMA
Occupied Range	26,521 (2)	155,181 (9)	129,096 (8)
Unoccupied Former Range		1,091 (<.5)	24,680 (4)
Movement Corridor	5,124 (1)	70,261 (12)	24,832 (4)

Other Special Status Species

Burros may degrade riparian habitat where they seek water and shade which can have an indirect affect on species of birds from the impacts on riparian vegetation, especially where burro numbers exceed carrying capacity. Although no mountain plovers have actually been seen, 12 percent of the projected range is within the Chocolate/Mule Mountains HMA. The Chocolate Mule Mountains HMA also includes significant portions (52%, 15%, and 53%, respectively) of the projected ranges of Gila woodpecker (State-listed), vermilion flycatcher, and yellow warbler. Ninety three percent of the projected range of the State-listed elf owl is within the Chemehuevi HMA. These last four bird species are all insectivores that depend upon riparian habitat with a well developed overstory.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

Desert Tortoise

Impacts to desert tortoise from vehicle travel include: death from being struck by vehicles traveling on roads and highways, habitat fragmentation, increases in predator (especially ravens) populations using vehicle roadkills to supplement the diet, changes in plant community from vehicle-related fires, loss of foraging and burrowing habitat from the road and activities associated with off-road camping, restriction of movements of tortoises, changes in plant composition due to alien plant introductions along road corridors and mortality of tortoises from various illegal activities such as collecting (Berry *et al.* in press) and shooting (Berry 1986) of tortoises.. These impacts are most severe along paved roads where vehicle frequency and speed is greatest. Impacts on dirt roads are also a function of vehicle frequency and speed. Populations are known to be significantly depressed along heavily traveled highways (Nicholson and Berry 1978).

With the proposed designation of routes there are 0.7 miles of road per square mile (or 24 miles per township) in desert tortoise critical habitat. Route density in tortoise habitat outside critical habitat is about the same. In addition, on BLM lands an unknown amount of navigable washes are open for travel. There are also a few open areas, dunes, and playas that are open for travel off of roads and washes; none of these are in desert tortoise critical habitat. On BLM lands, visitors may drive off of routes to stop, park, or camp. These activities are limited to a strip 300 feet on either side of a route except in Chuckwalla Bench ACEC, where the limit is 100 feet. In JTNP and CMAGR road systems are small and relatively fixed consistent with their mandates. There is a biological opinion for the use of that portions of CMAGR in Critical Habitat for the desert tortoise. The biological opinion directs speed limits to 25 mph.

A State Highway system of paved roads is in place. Except for upgrading of Highway 95, changes in the highway network are not expected.

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Bighorn Sheep

Bighorn sheep populations are fragmented by numerous highways, roads, railroads, and aqueducts. Major barriers to bighorn sheep movements are Interstate 10 and Interstate 40. Movements across these interstate highways is believed to be so small at this time that the metapopulation boundaries are drawn there. Movement under bridges is not known to occur along these highways. The Colorado River Aqueduct is a major barrier in those places it is above ground.

Lesser barriers include Highways 66, 62, 177, 95, and 78. The AT&SF Railroad (parallel to Old Highway 66) and the Eagle Mountain Railroad (scheduled for reactivation) likely inhibit bighorn sheep movements between demes; however, bighorn sheep do cross these and other linear human disturbances (e.g., transmission lines, fences) even across broad valleys (Bleich 1990). These movements are considered vital to the maintenance of genetic variability necessary to sustain a viable metapopulation (Bleich *et al.* 1990, Schwartz *et al.* 1986).

Other Special Status Species

Vehicle use on highways and, to a lesser degree, roadways results in some mortality of wildlife, especially vulnerable or slow moving animals, such as flat-tailed horned lizards and desert rosy boa. The amount of mortality for various special status animals and the relative importance to the populations is not known. To the extent that the mortality affects populations, highways and roads may serve as barriers to animals movements and gene flow. Culverts and bridges along major highways may mitigate the barrier effects.

Impacts of vehicle use of minor routes and washes is most important at locations where critical animal activities occur. Among these are nesting, nursing and watering sites. The following critical sites/activities for specific species or species groups are generally fixed or predictable over time:

Bats - Caves and mines used for nurseries, winter hibernacula, and summer roosts;
Burro deer - Water sources;
Hawks and falcons - Eyries (cliff nests).

Vehicular activity near these sites at the proper season could disrupt vital life functions and affect population status.

From Issue : Land Ownership Pattern

The BLM has been acquiring wildlife habitat in the NECO Planning Area for the past 20 years. Direct purchases have been made using Land and Water Conservation funds appropriated by Congress and tortoise habitat compensation funds. Most of these acquisitions have been in the Chuckwalla Bench ACEC. The purpose of these acquisitions was specifically to bring tortoise habitat into Federal ownership.

Recently the BLM has made very large acquisitions from Catellus Corporation using both donated and Land and Water Conservation fund sources. Most of these lands have been in and around wilderness areas. The purpose of these acquisitions was to bring endangered species habitat (i.e., desert tortoise) and wilderness inholdings into Federal ownership.

CUMULATIVE IMPACTS

General Wildlife

Overall, impacts to wildlife from human activities are low in the NECO Planning Area. This is because a high proportion of the NECO Planning Area is in reserve level management (i.e., Joshua Tree National Park, BLM wilderness, BLM ACECs, and even most of Chocolate Mountains Aerial Gunnery Range). Despite this, the invasion and spread of alien plants, heavy burro use in several areas, and barriers to animal movement are significant impacts on wildlife populations.

Various old and new utilities form a network throughout the desert. The direct reduction in habitat is small, but indirect impacts resulting from access on maintenance roads may be significant in some areas. Transmission lines provide perching and nesting sites for birds of prey. This may be beneficial for these species, but may negatively effect populations of some prey species. Additional utilities connecting the Los Angeles and San Diego areas with the rest of the country can be expected.

An established network of roads and highways provides access for miners, recreationists, and others. Roads and paved highways promote raven populations by providing roadkills used as food. Exotic, weedy species increase their distribution by invading down roadways. The Interstate Highway system (I-40 and I-8) is a major fragmenting barrier for wildlife, especially for slow moving reptiles such as desert tortoise.

The spread of exotic plants has degraded habitat for wildlife throughout the desert. Tamarisk infestations at springs are especially detrimental in the NECO Planning Area. Effected animals include migrating songbirds, bats, and other riparian dependent species. Desert habitats have been degraded by the replacement of native perennial grasses with exotic annual grasses and forbs. The effects on wildlife species are not fully understood at this time.

Urbanization in the region is centered around a few rural communities. Most of these have changed little for many decades. To date, loss of habitat to urbanization has not been great, and indirect effects on wildlife have been negligible.

Livestock grazing has occurred historically throughout much of the desert. However, the four grazing allotments cover only a small portion of the Planning Area, grazing intensity is low, and use is intermittent in three of the four allotments. Grazing is more important in and around the Mojave National Preserve to the north of the NEMO Planning Area. Overall effects on general wildlife are slight in the Planning Area.

Burro use in the HMAs along the Colorado River is significant. Monitoring date has shown that some areas have received excessive burro use, which has resulted in the degradation of riparian habitat in some areas. There have been continuing gather operations to remove burros where they exceed the lands carrying capacity. However, it is critical to monitor and protect rare and vital habitat associated with springs and riparian areas which are critical to migrating songbirds and some resident water and riparian dependent species (e.g., morning doves, Gambel's quail).

Although most mining operations have been small, there are a few large gold mining operations in the southern part of the Planning Area. There has been some loss of microphyll woodland used by wildlife as movement corridors. Historically, there has been a considerable amount of small mining and exploration throughout the Planning Area, especially in mountains. Some of this small mining activity has displaced wildlife at springs in the past, but there is little of such activity in the Planning Area today.

The California Desert Protection Act of 1994 established wilderness areas throughout the region. Within wilderness areas, the effects of motorized vehicles are virtually eliminated, and other multiple uses are greatly reduced. In addition, Joshua Tree National Park was expanded. Designation of the Mojave National Preserve adjacent to the Planning Area reduced multiple-use management (except hunting and livestock grazing) over several million acres in the region. Large amounts of desert tortoise habitat are now within the Preserve.

The BLM has several habitat acquisition efforts underway. Among these are small and medium sized acreages bought from time to time using compensation funds. Recent purchases from Catellus Land Development Corporation have added several hundred thousand acres to the public land rolls both in the NECO Planning Area and in adjacent regions. These acquisitions increase the capability of Federal and State agencies to manage these lands as wildlife habitat.

There are numerous military bases in the California Desert and nearby in Nevada. Most are very large covering hundreds of thousands of acres. The only military base in the Planning Area is the Chocolate Mountains Aerial Gunnery Range. The Marine Corps Air Combat Center is located just west of the Planning Area. The former is used primarily for bombing practice at small, fixed targets. Only a few acres of wildlife habitat are directly affected by the bombing. For the most part, the Gunnery Range is beneficial to wildlife by excluding conflicting uses.

Various recreational activities, such as camping, hunting, target shooting, rock-hounding, and rock-climbing, can effect wildlife in a localized area. These effects are probably most significant where they occur at a critical habitat feature, such as a spring or cave, or in rare habitats, such as dunes or playas. Wildlife displacement in critical seasons, such as when young are being reared, can be significant.

To the northwest, the West Mojave Coordinated Management Plan (CMP) is currently in preparation. To the south, the Northern and Eastern Mojave CMP is in preparation. To the west, the Coachella Valley Habitat Conservation Plan is in preparation. These plans will implement the desert tortoise recovery plan within their respective areas and will provide management prescriptions and protection for many other special status plants and animals.

Several ACEC plans and habitat management plans have been prepared to address habitat management issues in the Planning Area. Although some have targeted specific special status animals, several others have focused on important habitat for a wide range of wildlife species (e.g., Chuckwalla Bench ACEC Plan, Chuckwalla Valley Dune Thicket ACEC Plan, and Milpitas Wash Habitat Management Plan). The BLM's Rangewide Tortoise Plan and California Statewide Tortoise Management Policy apply to much of the Planning Area; these policy documents provide some benefit to other wildlife species.

Desert Tortoise

Tortoise populations have declined precipitously in much of the California Desert, including some areas in the NECO Planning Area. Surveys at permanent tortoise study plots have shown declines as high as 90 percent in the Chuckwalla Bench and lower Chemehuevi Wash areas. Causes are not yet clear, but mortality from shell diseases and predation are apparently high in these areas.

In the West Mojave, upper respiratory tract disease (URTD) has reduced desert tortoise populations significantly in the past 15 years or more. Individuals with URTD have been found in most regions of the California Desert, including the NECO Planning Area. As the URTD epidemic spreads, high mortality from URTD will possibly, if not probably, occur in the Planning Area.

Overall, disturbance of tortoise habitat has not been great in the NECO Planning Area (about 1% in critical habitat), but there have been large areas where alien grasses have become dominant. The effects on desert tortoise are not fully understood. Fires have not been common or large in the NECO Planning Area in the past, but may increase as the alien grass cover increases.

Tortoise mortality along Interstate and State highways is high, and populations are depressed significantly within 2 miles of these highways. Effects along major and minor dirt roads is unknown, but may be significant in total.

As evidenced by the large number of desert tortoises in captivity in urban areas, collecting has been high in the past. Whether legal protection and public education have reduced collecting in recent years is unknown.

Agriculture, roadkills, landfills, and other human activities have augmented raven food sources and have resulted in highly inflated raven populations. As a result, raven predation on hatchling and juvenile tortoises has severely reduced recruitment of young in some areas. Although the effects on tortoise populations, have been greatest in the West Mojave, some heavy predation on tortoises has been observed in the Planning Area, also.

Both the Chuckwalla Bench ACEC Plan and Milpitas Wash Habitat Management Plan included desert tortoise as a target species. Both plans cover portions of Chuckwalla Critical Habitat Area. The BLM's Rangewide Tortoise Plan and California Statewide Tortoise Management Policy prescribe policies on land acquisition and retention and on discretionary activities, but do not resolve conflicts with uses authorized in the CDCA Plan.

Other Special Status Animals

Special status animals are affected as described above for general wildlife. However, most of them have reduced populations because of specialized behavior, habitat, or life history features that place them in conflict with human uses. For some special status species, the NECO Planning Area is at the margin of their distribution (e.g., Gila woodpecker, elf owl), and their populations are naturally small. There are currently few management measures planned or implemented for special status animals except bighorn sheep and burro deer.

For both bighorn sheep and deer, there has been an active water development program underway for several decades. This program consists of 1) improvement of natural springs and tenajas (natural rock basin that retains a pool of runoff water), 2) development of artificial waters such as wells and guzzlers, and 3) installation of cattle or burro exclosures at watering sites. Most such improvements for bighorn sheep or located in or at the base of mountain ranges where escape terrain is available Improvements for burro deer are mostly in washes and rolling terrain near microphyll woodland that provides cover from predators and weather. The water development program, including maintenance of facilities, has been largely directed by CDFG in cooperation with the Society for Conservation of Bighorn Sheep and Desert Wildlife Unlimited with some assistance from BLM.

4.1.6 Wilderness Management

From Issue 1: Standards and Guidelines
Managing ecosystem health in accordance with National Fallback Standards, which pertain to soils, riparian and wetland areas, stream function, and native species, and managing grazing activities in accordance with the National Fallback guidelines will benefit wilderness resources to the degree that natural conditions are preserved. It is anticipated that managing ecosystem health and grazing activities accordingly will have no adverse impacts to wilderness. Site-specific projects to implement the National Fallback standards and guidelines will require separate environmental review, including a "minimum tool analysis" which specifies the manner in which projects are to be completed. Projects not conforming with provisions of the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans will not be allowed.

From Issue 2: Recovery of the Desert Tortoise
Management of Category I and II desert tortoise habitat within the Northern Colorado Desert and Eastern Colorado Desert Recovery Units in accordance with the *California Statewide Desert Tortoise Management Policy* will likely have no effect on, or may benefit wilderness resources to the degree that natural conditions are preserved, and plant and animal diversity is protected. None of the actions specific to recovery of the desert tortoise as proposed in the NECO Plan under this alternative are anticipated to adversely affect wilderness resources. Site-specific projects to facilitate recovery of the desert tortoise will require separate environmental review, including a "minimum tool analysis" which specifies the manner in which projects are to be completed. Projects not conforming with provisions of the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans will not be allowed.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Actions that maintain or enhance populations of special status animals and plants, and preserve or restore natural communities will have no effect on, or may benefit wilderness resources to the degree that natural conditions are preserved, and plant and animal diversity is protected. Site-specific projects will require separate environmental review, including a "minimum tool analysis" which specifies the manner in which projects are to be completed. Projects not conforming with provisions of the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans will not be allowed.

From Issue 4: Wild Horses and Burros
In accordance with the *Wild Free-Roaming Horse and Burro Act of 1971*, such animals are considered an integral part of the natural system of the public lands in areas where found. It stands to reason, then, that impacts (from wild horses and burros) to the natural conditions of designated wilderness within herd management areas (HMAs) as established through the CDCA Plan are acceptable *if* herd numbers are consistent with the appropriate management levels (AMLs) for the HMAs and herds are managed in accordance with approved management plans. Wilderness management plans may include controls to protect sensitive resources. Where managed at prescribed levels and in accordance with applicable plans, wild horses and/or burros are deemed to have no substantial impacts on natural conditions in the Piute Mountains (where the herd area is currently managed for zero burros), Chemehuevi Mountains, Whipple Mountains, Palo Verde Mountains, Picacho Peak, Indian Pass, and Little Picacho Peak Wildernesses.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

Whereas motorized vehicles are prohibited in wilderness except as authorized by the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans, the extent to which unacceptable impacts to wilderness resources occur consequent to motorized-vehicle travel is proportional to the manner and degree of *unauthorized* incursions into wilderness areas. Under this alternative, motorized-vehicle access to wilderness boundaries would be maximized as all "existing" routes would be available for use. When opportunities for such access are maximized, the potential for unauthorized incursions into wilderness is concomitantly increased. However, the extent to which such incursions are anticipated is undetermined.

[Note: Closure of "non-routes" and "partial non-routes" would not affect access to wilderness boundaries given these routes' apparent lack of use.]

Parker 400 competitive recreation route:

The *Parker 400* competitive recreation route as established through the CDCA Plan incorporates certain routes that comprise the boundaries (partial) of the Turtle Mountains and Whipple Mountains Wildernesses. Prior to enactment of the CDPA (1994), the *Parker 400* corridor occurred immediately adjacent to a portion of the Whipple Mountains Wilderness Study Area (WSA) recommended suitable for wilderness, and a portion of the Turtle Mountains WSA recommended as non-suitable for wilderness. Generally, vehicles could not stray into the Whipple Mountains WSA during a race given limitations imposed by topography, but ample opportunity existed for straying into the Turtle Mountains WSA. Recollection of Needles Field Office staff is that such straying did, in fact, occur during racing events.

Upon enactment of the CDPA, the "non-suitable" portion of the Turtle Mountains WSA was designated as wilderness. Potential for straying into the Turtle Mountains Wilderness would exist upon approval of a competitive off-highway vehicle event in the *Parker 400* corridor, possibly resulting in degradation of wilderness resources. Specific mitigation measures to avert such degradation (e.g., increased use of temporary barriers; closer spacing of race officials along the wilderness boundary; running under "yellow flag" conditions when adjacent to the wilderness boundary; etc.) could be incorporated as stipulations if a permit for an event in this corridor is approved. It is unlikely that straying would occur into the Whipple Mountains Wilderness.

Johnson Valley to Parker competitive recreation route:

The *Johnson Valley to Parker* competitive recreation route as established through the CDCA Plan incorporates certain routes that comprise the boundary (partial) of the Sheephole Valley Wilderness. Although it is not known if straying occurred during past events in this corridor, it is reasonable to expect that course widening, short cutting, and illegal cross-country travel *could* occur during future events given the nature of high-speed vehicle racing in the desert. As evidenced through monitoring of the 1989 Barstow-to-Las Vegas motorcycle race, competitors strayed from the approved course despite the sponsor's efforts to restrict their travel. Straying from the *Johnson Valley to Parker* route into the Sheephole Valley Wilderness could result in degradation of wilderness resources. Specific mitigation measures to avert such degradation (e.g., increased use of temporary barriers; closer spacing of race officials along the wilderness boundary; running under "yellow flag" conditions when adjacent to the wilderness boundary; etc.) could be incorporated as stipulations if a permit for an event in this corridor is approved.

Competitive off-highway vehicle events in accordance with MUC guidelines:

> Where competitive off-highway vehicle events are permitted in accordance with MUC guidelines and the use of wilderness boundary roads is allowed, potential for straying from the approved course into designated wilderness exists; degradation of wilderness resources would be likely. Specific mitigation measures to avert such degradation (e.g., increased use of temporary barriers; closer spacing of race officials along the wilderness boundary; running under "yellow flag" conditions when adjacent to the wilderness boundary; etc.) could be incorporated as stipulations if wilderness boundary roads are used.

From Issue 6: Land Ownership Pattern

Acquisition of private lands within wilderness—a continuing independent process requiring no specific action through the NECO Plan—will benefit wilderness resources to the degree that actions adversely affecting natural conditions are averted. As more lands are acquired within wilderness, assurance that ecological processes can be maintained or enhanced is concomitantly increased.

CUMULATIVE IMPACTS

The Wilderness Act was passed by Congress in 1964 to ensure that population growth and development did not alter all of the Nation's lands. The Act established the National Wilderness Preservation System wherein federally-owned areas designated by Congress as wilderness would be protected from the effects of population growth and development.

In 1994, Congress enacted the California Desert Protection Act in furtherance of the purposes of the Wilderness Act to secure an enduring heritage of wilderness and public land values for future generations in the face of increasing threats by adverse pressures that might impair, dilute, or destroy these values. Although a multitude of various uses have occurred on what are now designated wilderness lands in the California desert—mineral extraction, livestock grazing, off-highway vehicle operations, and so on—it was determined during the process for assessing wilderness suitability that 137 areas in the CDCA possessed wilderness characteristics. In other words, despite these activities having occurred, the public lands still appeared to be natural in character. Whatever impacts stemming from these activities that remained were deemed to be substantially unnoticeable.

Since designation of certain public lands in the NECO Planning Area as wilderness by Congress, threats to wilderness resource values have been minimized. Management of these lands has conformed to the requirements of the Wilderness Act of 1964 and the California Desert Protection Act of 1994. Cumulative effects of management actions in wilderness since 1994 have been negligible. At the same time, visitor use of most wilderness areas is low. As a result, wilderness characteristics have been retained.

4.1.7 Livestock Grazing Management

From Issue 1: Standards and Guidelines

Rangeland health conditions have been assessed for all allotments. Except the West Well in Chemehuevi Allotment, all standards have been attained. No impacts to cattle grazing activities are expected when conducting prescribed treatment of tamarisk infestation at the well and reduction of burro numbers.

In this alternative, cattle and sheep grazing use on 605,454 acres of public land is expected to continue with a combined management strategy based on allotment management plans, grazing regulations, activity plans, and mitigation measures specified in Appendix C from the current biological opinion. Installation of a few minor range improvements could be necessary to maintain current rangeland health and resource objectives.

Although not anticipated, there may be a need for temporary reductions or shifts in grazing activities in small areas for a limited period to restore soil and vegetative conditions. These potential actions could require the lessee to herd cattle or sheep, construct range improvements to control livestock movement, and convert to another class of livestock for better distribution. The lessee would be responsible for control and management of livestock while restoration continues. If the remainder of the allotment were not available for grazing use during this period, the lessee would have to remove livestock until conditions are restored or range improvements are constructed.

The improved vigor of perennial vegetation from maintenance of the standards would increase cattle weaning weights. Livestock in better body condition would improve animal health and reduce death loss through stress-related diseases. Implementation of standards would not impact current sheep grazing operations under this alternative. Cattle grazing activities would see insignificant to minimal changes to their operations with implementation of the National Fallback standards.

From Issue 2: Recovery of the Desert Tortoise

Currently, grazing activities for all allotments have been reviewed through Section 7 consultation process by the USFWS and these activities have been mitigated through biological opinions. Sheep and cattle grazing activities have been operating under biological opinions issued in March 15, 1994 and March 14, 1994, respectively. These measures have been in place for several years and grazing operations have been adjusted through the years to accommodate the additional stipulations.

Range improvements are a necessary component of grazing management to control and care for livestock and reduce impacts to vegetation and soils from trampling. Under this alternative, there are no proposed range improvements for Rice Valley and Ford Dry Lake Allotments. A small water facility will be constructed adjacent to the West Well in the Chemehuevi Allotment. The Lazy Daisy Allotment has numerous proposed range facilities. The addition of three corrals, six water facilities with four miles of pipe, four water sites, one cattleguard, and 5½ miles of fence are expected to enhance cattle distribution. Some of these projects have been waiting for funding or approval for many years. The cost to construct these improvements is approximately $68,210, and about 70 percent of the facilities will be completed within the short-term while the remainder will be completed within the long-term.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities

The operation of the two sheep grazing leases would remain unchanged except for unknown future changes which could result from application of the National Fallback Standards and Guidelines, and evaluation of the lease areas with respect to Federal policy on proximity of domestic sheep grazing and native sheep habitat (see Appendix J). As they are, all or portions of the two leases are within the minimum distance of separation. There would be no net change in grazing use or activities under this alternative.

CUMULATIVE IMPACTS
The California Desert Protection Act established 69 wilderness areas, some of which included existing grazing allotments. Although grazing is allowed within wilderness, the restrictions regarding use of motorized vehicles, equipment and development of new range improvements have made the grazing operation more difficult for the permittees.

Changes to grazing management to meet the National Fallback standards would result in minimal positive impacts to annual and perennial vegetation for the Planning Area. Current field assessments have found that achievement of standards has not affected cattle and sheep grazing activities. Grazing operations continue to be affected by mitigation measures for listed species.

4.1.8 Wild Horses and Burro Management

From Issue 1: Standards and Guidelines
National Fallback Standards and Guidelines only apply to grazing allotments.

From Issue 2: Recovery of the Desert Tortoise
The Chemehuevi and Chocolate/Mule Mountain HMAs overlap portions of designated Category I and II desert tortoise critical habitat. However, in the overlap area the frequency of burro occurrence is low.

The Piute Mountain HA is entirely within Category I desert tortoise critical habitat and has an estimated 24 burros. As the management level is zero, the burros will be removed.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
The management of other species has little effect upon the management of wild burros. Installation of new artificial waters for bighorn sheep and deer, many of which are unfenced (do not exclude burros), may be helping to expand burros into areas/in numbers above previous levels.

From Issue 4: Wild Horses and Burros
The current management situation is very cumbersome and inefficient and promotes leadership vacuum. As a result removal of excess and nuisance burros and performing census have not kept pace with agency commitments.

CUMULATIVE IMPACTS
The CDCA Plan designated 19 wild burro HMAs in the California Desert. Since then a number of burros were eliminated from historic burro ranges and HMAs have been eliminated through plan amendments. With the passage of the California Desert Protection Act six burro HMAs were transferred to the Mojave National Preserve (National Park Service) which proposes to eliminate through land use planning.

Five HMAs would remain, although two no longer carry a viable burro population (>10 animals). Few viable HMAs remain. Of these three, one is located in the Clark Mountain area and two are in the NECO Planning Area. These two contain considerable management complexities: tortoise, bighorn sheep, other affected agencies, and dual BLM responsibilities - all of which create a ground swell for reduction/elimination.

4.1.9 Recreation Management

From Issue 1: Standards and Guidelines
Managing ecosystem health in accordance with National Fallback Standards and managing grazing activities in accordance with the guidelines are not anticipated to appreciably affect opportunities for recreation. Non-motorized activities (e.g., hiking and horseback riding) at low levels of occurrence generally result in minor localized impacts to soils, riparian/wetland areas, streams, and native species. Although little to no data has been collected regarding such use or associated impacts, particularly within the Lazy Daisy, Chemehuevi, Rice Valley, and Ford Dry Lake grazing allotments, it is believed that non-motorized recreational activities occur at low levels with negligible impacts. During open hunting seasons for game species, the NECO Planning Area likely experiences increased levels of recreational use, but not to the degree that requirements to achieve National Fallback Standards would limit opportunities for hunting or other forms of non-motorized recreation. No actions stemming from the guidelines that limit non-motorized recreation are proposed through the NECO Plan.

Most non-motorized recreational pursuits in the California desert require the use of motorized vehicles to facilitate access. Discussion pertaining to impacts on motorized-vehicle access appears under *Issues 2, 3,* and *5* (this section), and section 4.1.10 (Motorized-Vehicle Access).

From Issue 2: Recovery of the Desert Tortoise
Under this and all other alternatives, routes of travel are designated in accordance with provisions of the CDCA Plan, as amended, and the regulations at 43 CFR 8342.1. The regulatory criteria require that trails (routes) be located to minimize harassment of wildlife or significant disruption of wildlife habitats. They further require that special attention be given to endangered or threatened species and their habitats. As the desert tortoise is listed as a threatened species, route designations must ensure that tortoises and their habitats are not harassed or significantly disrupted, respectively. Where route designation decisions limit access or preclude motorized activities within designated critical habitat for the desert tortoise, opportunities for recreation may be affected.

Under this alternative, all "existing" routes of travel would be available for use except "non-routes" and "partial non-routes" which would be designated "closed"; no specific criteria in addition to those at 43 CFR 8342.1 are proposed for the protection of the desert tortoise. As "non-routes" and "partial non-routes" apparently receive little to no motorized-vehicle use, recreational activities with a motorized component would not be affected, whether the use of a motorized vehicle is the primary recreational activity (e.g., driving for pleasure) or a means of access only (e.g., transportation to a wilderness trailhead). Conversely, recreational activities of a non-motorized nature may be adversely affected concomitant with maximization of motorized-vehicle access. This is especially true where a component of the non-motorized activity is solitude and/or quietude. However, the degree to which non-motorized activities would be affected in this manner is undetermined.

Under current management, stopping, parking, and vehicle camping is allowed within 300 feet of routes, except within sensitive areas such as ACECs where the 1980 CDCA Plan limit of 100 feet applies. The rationale for changing the distance from 100 feet to 300 feet (1982 CDCA Plan Amendments Three and Forty-Nine, approved May 17, 1983) is to allow for camping in a circle, not a line. A 100-foot limitation allows for such camping by a small groups only; large groups

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would require parking in a line or breaking into smaller groups under this alternative. Consequently, impacts to camping are minor for those using a single vehicle or only a few vehicles.

Generally, the quality of camping experiences relative to distances from a route are a function of traffic levels on that route. The greater the level of traffic, the greater the need to be distant from such traffic to maintain a high-quality camping experience. Traffic on routes along which most individuals would likely select for camping is generally low. Therefore, whether one camps 100 feet or 300 feet from a route in an ACEC matters little if no other vehicles pass by, especially during the night. Furthermore, few people will likely camp adjacent to such routes as the Bradshaw Trail, one of many maintained dirt roads, when numerous less-traveled side routes are available that enable campers to distance themselves from the more frequently-used routes.

Where stopping, parking, and vehicle camping occur in washes, such activities are confined within the banks of washes. In the context of motorized-vehicle access, the term "wash" is defined as a watercourse which by its physical nature permits the passage of motorized vehicles. One of these physical limitations is width. Compromising the banks of a wash in conjunction with the operation of motorized vehicles constitutes destruction of natural features, which is an illegal act. Thus, the operation of vehicles is confined to those areas within the banks of a wash throughout the NECO Planning Area (except in designated off-highway vehicle recreation areas). This limitation has not adversely affected opportunities for stopping, parking, and vehicle camping to date, nor has it constrained motorized-vehicle access.

Where traditional access is limited or precluded consequent to the route designation process, opportunities for stopping, parking, and vehicle camping are also limited or precluded. As all "existing" routes would be available for use under this alternative, except for "non-routes" and "partial non-routes," opportunities for these activities would not be further constrained.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities

There is a close relationship between the pursuit of recreational activities and motorized-vehicle use in the California desert, whether the latter is a primary constituent of the activity (e.g., driving for pleasure) or a means of access only (e.g., transportation to a wilderness trailhead). It is difficult, if not impossible in many circumstances, to engage in recreational activities in this region without employing a motorized-vehicle in some fashion. Therefore, actions which restrict vehicular access may result in adverse impacts to recreation depending on the specific activity pursued and/or the specific location at which such restrictions are imposed. Under this alternative, however, all "existing" routes of travel would be available for use, except "non-routes" and "partial non-routes" which would be designated "closed"; no specific criteria in addition to those at 43 CFR 8342.1 are proposed for the management of special status animals and plants and natural communities. Therefore, adverse impacts to recreation are not anticipated.

From Issue 4: Wild Horses and Burros

Current management of wild horses and burros does not affect opportunities for recreation.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

Motorized-vehicle access and the pursuit of recreational endeavors are closely linked in the California desert. Except for competitive off-highway vehicle events, impacts to recreation consequent to managing routes of travel in accordance with the CDCA Plan, as amended, are discussed under *Issues 2* and *3* (this section).

As regards competitive vehicle events, adverse impacts to such recreational endeavors under this alternative are considered negligible. Although the "Checkchase" using the *Johnson Valley to Parker* corridor last occurred in the 1980s, interest has recently been expressed to rekindle this or a similar event. This alternative provides for such an event in the *Johnson Valley to Parker* corridor in accordance with conditions prescribed in the CDCA Plan and the *Johnson Valley to Parker Motorcycle Race EIS* (1980). Absent a change in the circumstances which led to the establishment of this race corridor, it can be assumed that permits for competitive off-highway vehicle events will be issued.

Although the CDCA Plan provides for competitive vehicle events in the *Parker 400* corridor, it is unlikely that such events would be permitted in the future given past experiences with the *Parker 400* event and similar events (e.g., Barstow-to-Las Vegas motorcycle race), and the potential for adverse impacts to the desert tortoise and its habitat. With BLM's denial of the application to use the California loop of the *Parker 400* course in 1990, organizers moved the event in its entirety to Arizona, and have held it there since that time. There has been little interest expressed in reestablishing the event in California. Adoption of this alternative would leave intact a competitive event corridor in which no events would likely occur.

Outside the *Johnson Valley to Parker* and *Parker 400* corridors, competitive events would be allowed in accordance with MUC guidelines. Given the expanse of designated wilderness and critical habitat for the desert tortoise, it could be problematic to locate a suitable race course that avoids sensitive areas. In addition, the review process under NEPA, especially if a "may affect" determination is made relative to the desert tortoise thereby triggering consultation with the U.S. Fish and Wildlife Service in accordance with Section 7 of the Endangered Species Act, could require considerable time and result in an uncertain outcome. Planning for competitive events is, therefore, difficult at best and may discourage event sponsors from pursuing a special recreation permit under these circumstances.

From Issue 6: Land Ownership Pattern

In most areas, access to private lands for recreational purposes is not restricted; landowners, most of whom do not live on their properties, generally have not posted their lands as closed to the public. As such, implicit permission is often assumed by the general public to use these lands in a manner that does not degrade their character. But as long as such lands are held in private ownership, there is potential for public exclusion from them, or at the very least, the necessity to obtain landowner permission prior to use. Such restrictions or requirements would adversely affect the public's "freedom" of access as currently enjoyed. To the extent that private lands are acquired in some ACECs, tortoise Category I and II, and wilderness areas, opportunities for access to these lands for recreational purposes will be preserved.

Disposal of public lands will affect opportunities for recreation to the extent that public access is precluded. It is not anticipated that lands identified for disposal under this alternative would result in substantial limitations on recreational access.

CUMULATIVE IMPACTS

Increases of population in southern California and southwestern Arizona through the last half of the 20th century have been accompanied by greater demands for recreational resources, including use of what were once considered inhospitable regions of the NECO Planning Area. With these increased demands came conflicts between those who use vehicles as a means of access and those who operate vehicles as a recreational activity. Public lands once open to unrestricted vehicle travel have become increasingly more restrictive for such activities to ensure that resource values are not diminished and user conflicts are minimized.

The California Desert Conservation Area Plan (1980) established Multiple-Use Class guidelines which set the stage for managing all forms of recreational activities. While some viewed these management prescriptions as hampering their freedoms for pursuing motorized recreation, others saw them as necessary to protect resource values, thereby fostering recreational uses of a different sort. Enactment of the California Desert Protection Act of 1994 substantially changed the "playing field" once again with designation of 69 wilderness areas, 23 of which are located in the NECO Planning Area. As required by statute, casual use of motorized vehicles in wilderness is prohibited; hundreds of miles of motorized-vehicle routes were consequently closed to the casual recreationist. Among the most notable of the impacts of wilderness designation to motorized recreation was the elimination of certain segments of the East Mojave Heritage Trail, a vehicle touring route of more than 600 miles established by the Friends of the Mojave Road.

Along with restrictions on motorized-vehicle travel came limitations on where one could park and stop their vehicle, as well as where one could camp with it. Opportunities for off-highway vehicle racing have also become increasingly constrained upon listing of the desert tortoise as a threatened species. Permits for such events as the *Barstow-to-Vegas* motorcycle race and the *Parker 400* event have not been issued in California for more than 10 years. In general, activities involving the use of motorized-vehicles have become more and more limited over the last quarter century. However, it is not anticipated that further limitations of a substantial nature would occur in the reasonably foreseeable future.

Opportunities for non-motorized recreational activities of which a constituent part is freedom from the sights and sounds of the mechanized world have concomitantly increased as motorized-vehicle travel has been restricted. Although *all* forms of recreation in the California desert usually require some use of motorized vehicles—at a minimum, a vehicle is necessary to access sites for non-motorized activities—opportunities for non-motorized recreation are not substantially constrained by existing access limitations. It is not expected that opportunities for non-motorized recreation will significantly change in the coming years.

4.1.10 Motor Vehicle Access

From Issue 1: Standards and Guidelines

Managing ecosystem health in accordance with National Fallback Standards and managing grazing activities in accordance with the guidelines affect motorized-vehicle access to the same degree as managing a route network consistent with the route designation criteria at 43 CFR 8342.1. In accordance with the regulatory criteria, routes and trails are to be located to minimize damage to soil, watershed, vegetation, or other resources of the public lands, and to minimize harassment of wildlife or significant disruption of wildlife habitats. These are the same resources addressed by standards and guidelines in managing ecosystem health and grazing activities, respectively. In

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applying the regulatory criteria, therefore, the parameters established to designate routes of travel substantially mimic the National Fallback Standards and guidelines.

Although motorized vehicles can reduce soils infiltration and permeability due to compaction, their use is limited to existing and approved routes of travel except in areas designated "open" to motorized vehicles and within designated wilderness where unauthorized use of vehicles is prohibited. Limiting motorized vehicle use to *non-wash* routes of travel, in particular, localizes compaction to linear areas in which such impacts to soils are generally acceptable and have already occurred. Due to the highly variable nature of *wash* routes concomitant with the variability of washes themselves, impacts to soils consequent to vehicle use can vary greatly from one wash to another. However, no specific management actions to minimize damage to soils by motorized vehicles relative to National Fallback Standards and guidelines are proposed.

From Issue 2: Recovery of the Desert Tortoise
Actions pertinent to recovery of the desert tortoise affect casual motorized-vehicle access as described under *Issue 2*, section 4.1.9 (Recreation Management). Access for *other* than casual purposes—access related to activities which require specific authorization—is addressed through the applicable permitting process. The authorized use of a "closed" route usually limits this use in some manner (e.g., number of trips, season of use, speed limits, accompaniment by a wildlife biologist, etc.) and/or requires mitigation in some form (e.g., restoration of impacts, payment of mitigation fees, etc.). Route designations, which are applicable principally to casual use, would have little to no effect on access for non-casual purposes.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Actions pertinent to management of special status species and natural communities affect casual motorized-vehicle access as described under *Issue 3*, section 4.1.9 (Recreation Management). Access for *other* than casual purposes—access related to activities which require specific authorization—would be affected in the same manner as described under *Issue 2* (this section).

From Issue 4: Wild Horses and Burros
Current management of wild horses and burros does not affect motorized-vehicle access.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Managing motorized-vehicle access in accordance with MUC guidelines established in the CDCA Plan, as amended, would affect access in the same manner as described under *Issues 2* and *3* (this section), and *Issues 2* and *3*, section 4.1.9 (Recreation Management).

Manageability:

Determining manageability of a proposed route network requires an assessment of BLM's ability to effectively direct motorized-vehicle use to routes available for such use and away from routes on which motorized activities are deemed to cause adverse impacts. Accordingly, manageability is a function of how well pertinent rules and guidelines are communicated to the public *and* to what degree the rules are perceived as fair and reasonable. The introduction to the Motorized-Vehicle Access element of the CDCA Plan succinctly summarizes the challenge of managing motorized vehicles:

> While the Bureau is responsible for vehicle use on public lands, much of the control of vehicle travel in the desert is the responsibility of the

> user, whether the goal is recreational or commercial. The Bureau of Land Management does not and will not have the funds or staff to oversee vehicle use throughout the desert at all times. Therefore, rules for vehicle use must be fair, understandable, easy to follow, and reasonable if they are to be publicly accepted. Only commitment by the public, the owners of these lands, will insure success of rules and guidelines.

Are the rules understandable and easy to follow? The proposed implementation strategy identified in section 2.5 indicates the primary route network would be appropriately signed on the ground, information kiosks which depict the primary network would be installed at key locations, and printed media depicting this network would be developed and distributed to the public. It is anticipated that such an effort to communicate the rules and guidelines will be forthcoming and effective, but only if the effort is focused and continuous.

Under this alternative, the vast majority of routes currently in use by motorized vehicles would be available for continued use; the existing network of routes would scarcely be modified. Except for certain locations, compliance with the current rules and guidelines for motorized-vehicle use in the NECO Planning Area has been acceptable. It is reasonable to anticipate that these circumstances would not appreciably change with adoption of the No Action Alternative.

From Issue 6: Land Ownership Pattern

Actions pertinent to land tenure adjustments affect casual motorized-vehicle access as described under *Issue* 6, section 4.1.9 (Recreation Management). Access for *other* than casual purposes (access related to activities which require specific authorizations) is addressed through the applicable permitting process. Access across non-public lands in conjunction with authorized activities on public lands generally requires landowner permission. To the extent that non-public lands are acquired, access for both casual and authorized activities can be assured.

CUMULATIVE IMPACTS

Motorized-vehicle access and opportunities for recreation are closely linked in the California desert. The cumulative effects on motorized-vehicle access under this alternative, therefore, are the same as described in the section entitled "Recreation Management" for the No Action Alternative.

4.1.11 Mineral Management

From Issue 1: Standards and Guidelines

As Standards and Guidelines apply only to grazing management, minerals operations would not be affected.

From Issue 2: Recovery of the Desert Tortoise

There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place. Mitigation, compensation, and reclamation requirements are currently imposed and increase the cost of operations and also create time delays to gaining permits.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities

There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place. Limited surveys, mitigation, disturbance avoidance, and compensation are currently required. Most species mitigation and avoidance are aimed at operations which involve cyanide and other hazardous materials, rare plants, bighorn sheep, and bats. Requirements are not consistent by place or among agencies and can create time delays.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
There would be a slight loss of access from closing non-routes which could affect casual mining activity. Authorized use of closed routes would be considered for authorized mining activities which would affect such activities to the extent of time and costs of gaining necessary authorization.

From Issue 6: Land Ownership Pattern
Some simplification of the checkerboard ownership pattern is occurring in tortoise critical habitat which could simplify legal aspects of mining rights in these areas.

CUMULATIVE IMPACTS
Over a period of several decades access to minerals has been reduced from mineral withdrawals and the cost of mining from environmental considerations has increased. The bulk of initial withdrawals created military reservations and new units to the system of national parks. Most recently (1994) was the passage of the CDPA the major effect of which created a considerable amount of new BLM wilderness areas. Until 1994 access to and availability of mineral for development on BLM lands had been set in the 1980 CDCA Plan. Environmental considerations over the past 20 years, especially due to species and habitat listings and other environmental laws, regulations, and considerations has increased costs of developing the remaining available minerals. Uncoordinated land use planning and differing agencies' mandates add additional time delays and complexities to resolve.

Examples of minerals availability (by group) reducing effects of the CDPA throughout the California Desert are as follows (% of BLM mapped mineral potential now withdrawn):
1. Construction (6 minerals): 3% to 98%
2. Industrial (24 minerals): 22% to 100%
3. Metallic (29 minerals): 45% to 90%
4. Energy (geothermal and oil/gas): 54% and 83%, respectively

This alternative would essentially not add any additional restrictions or requirements to what has already occurred through other initiatives.

4.1.12 Cultural Management

Analysis Common to All Issues:
All actions that have the potential to affect cultural resources will be reviewed in consultation with the California State Historic Preservation Office under Section 106 of the NHPA, as implemented in BLM Statewide Protocol Agreement. Under the No-Action alternative, BLM would continue to review all projects for effects to cultural resources on a case-by-case basis as part of NEPA review at the time they are proposed.

From Issue 1: Standards and Guidelines
The incorporation of National Fallback Standards and Guidelines in the maintenance and

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promotion of rangeland health is an administrative action that does not qualify as an undertaking subject to review under Section 106 of the National Historic Preservation Act. There are no specific on-the-ground actions proposed in this plan for this issue. Specific actions that are carried out to meet the Standards and Guidelines may satisfy the definition of an "undertaking", such as placement of protective devices, water troughs, seeding, or other ground disturbing activities, and may have the potential to affect historic properties. Those actions will be reviewed in accordance with Section 106 of the NHPA during the course of normal NEPA review as actions are proposed.

The application of National Fallback Standards and Guidelines should result in a positive benefit to the protection and preservation of cultural resources. The Standards and Guidelines focus on protection and restoration of soils, riparian and wetland areas, streams, and native species. These areas also tend to be associated with historic and archaeological sites. Management proscriptions that promote the restoration of natural ecosystems, such as relocating water troughs away from springs and streams, encouraging the growth of native grasses to protect soil disturbance, and reduction of continuous season-long livestock use, are also likely to result in greater protection for cultural resources.

From Issue 2: Recovery of the Desert Tortoise
The No-Action alternative will continue current MUC class "L" and ACEC designations and would continue to provide a level of protection to cultural resources by limiting and conditioning activities in those areas. Activities, such as constructing tortoise fencing along major highways and railroads might affect cultural resources, especially through the introduction of new visual elements in historic landscapes and along historic trails or highways, such as Route 66. Proposals for fencing, bridge, or culvert construction will be reviewed on a case-by-case basis in accordance with Section 106 of NHPA, as implemented in the BLM Statewide Protocol for cultural resources.

Grazing Management
Current range management practices will continue. Livestock behaviors can adversely affect cultural resources, including historic structures, archaeological sites and historic landscapes. The primary impact is damage to artifacts and site integrity resulting from breakage, chipping, horizontal movement, and vertical displacement of artifacts, which generally compromises the information potential about discrete utilization areas of a site. Grazing impacts are greatest in areas where cattle congregate around springs, water courses, troughs, shade zones, and salt licks.

Currently, our knowledge of cultural resources within the boundaries of the four allotments in the NECO planning area is limited (See Table 4-9). Only 160 known sites have been identified within the boundaries of these allotments and only 121 cultural resources surveys have been reported..

Table 4-9 Correlation to Identified Cultural Resources and Each Alternative.

Identified Cultural Resources Within Allotment					
Allotment	**Type**	**No Action**	**Large DWMA Preferred**	**Small DWMA A Alternative**	**Small DWMA B Alternative**
Ford Dry Lake (Eliminated)	Sheep	0	0	0	0
Chemehuevi	Cattle	55	0	0	30
Rice Valley	Sheep	7	7	0	7
Lazy Daisy	Cattle	45	45	27	27
ALL		97	52	27	63

Current management policy is to analyze effects to cultural resources from grazing during the NEPA review of rangeland lease renewals and would continue in the No-Action alternative. New range improvements will continue to be reviewed under Section 106 at the time they are proposed.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Actions specific to the management of special status animals, plants, and natural communities, that might affect cultural resources include: land acquisition and disposal; construction, improvement, and maintenance of natural and artificial water sources; and construction of exclosures. Under the No-Action alternative, specific actions that are proposed through HMPs and other specific developments, such as installation of water guzzlers, will continue to be reviewed in accordance with Section 106 of NHPA through normal NEPA review of a proposed action.

The Ford Dry Lake domestic sheep allotment is eliminated in the No-Action Alternative. The Rice Valley domestic sheep allotment will continue to operate within current boundaries. Both allotments currently encompass 135,247 acres of land. Seven sites are recorded within the Rice Valley allotment and 53 sites are recorded in the Ford Dry Lake allotment (Table 4-10). Elimination of the Ford Dry Lake allotment will remove 49,682 acres from grazing and will eliminate the threat from grazing to the 53 known sites within the allotment. Elimination of this allotment will also have a positive benefit to the protection and preservation of cultural resources that have yet to be recorded.

Proposals for new water developments would continue to be reviewed on a case-by case basis as part of the environmental assessment. These actions will be reviewed in accordance with Section 106 during the course of normal NEPA review.

From Issue 4: Wild Horses and Burros
As with grazing, wild horses and burros can adversely affect cultural resources, especially artifacts and site integrity through breakage, chipping, horizontal movement, and vertical displacement of artifacts. Impacts are greatest in areas where herds congregate around springs, water courses, troughs, bedding areas, and shade zones.

Under the No-Action Alternative, herds will continue to be managed within the existing Herd Areas and Herd Management Areas which encompass an area of approximately 930,906 acres. There are no specific on-the-ground actions proposed in this plan for this alternative. Specific actions that are carried out to meet the standards may satisfy the definition of an "undertaking", such as placement of protective exclosures, water troughs, gathering traps, or other ground disturbing activities, and may have the potential to affect historic properties. Those actions will be reviewed in accordance with Section 106 of the NHPA during the course of normal NEPA review at the time they are proposed.

Currently there 816 cultural resources identified within the existing HMAs as noted in Table 4-10.

Table 4-10 Herd Management Areas: Correlation to Identified Cultural Resources and Each Alternative.

Identified Cultural Resources Within HMA				
HMAs	**No Action**	**Large DWMA Preferred**	**Small DWMA A Alternative**	**Small DWMA B Alternative**
Sites	816	399	0	403

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations

In the No-Action Alternative, designating routes on BLM lands as "open" has the potential to affect historic properties by authorizing continued motorized-vehicle use through areas that are sensitive for historic and archaeological sites. Designating a route "open" generally authorizes casual and non-competitive use of a route, including driving, parking, camping and other recreational activities within a corridor that is 300 feet on either side of the centerline of the route (600' Area of Potential Effect). In ACECs, this area may be limited to 100 feet either side of centerline (200' APE). These activities can adversely effect archaeological and historic properties ranging from inadvertent destruction resulting from ground disturbance from tires, camping, and other uses, to increased access to sensitive sites resulting in looting and vandalism of artifacts, rock art, traditional cultural properties, and other features.

There are more than 2300 miles of routes identified in the NECO planning area, of which approximately 1000 miles of routes (unmaintained dirt roads) are under review to be designated "open". The remaining routes have been either closed for other reasons, or have been administratively opened under other authorizations (paved roads, county roads, maintained dirt roads). Given the nature and scale of this planning document, no field survey for cultural resources has been completed to specifically address the probability, nature and extent of effects to historic properties that might result from this action. Information on existing sites located in the NECO planning area was compiled from data available in the California Historic Resources Information System and in BLM cultural resources records. Information was integrated into a database for analysis using Geographic Information Systems technology. From these records, all sites falling within the APE were identified . These sites were further categorized and delineated by National Register status (either listed or formal determination of eligibility). For most sites, no formal designation was identified. For the remaining sites, each site record was examined and, based on available information, was characterized in terms of the likelihood that the site would be considered eligible. Sites were further characterized in terms of the probability that activities that would occur within the APE would be likely to adversely effect the qualities or values that would qualify the site for inclusion on the National Register.

Under the No-Action alternative, routes identified as having no known cultural resources located within the APE that are listed, determined eligible, or likely to be considered eligible, or routes where there are no identified sites within the designated 600' wide Area of Potential of Effect, may be designated as "open".

Routes with recorded cultural resources within the 600' wide Area of Potential Effect, where preliminary analysis indicates that the resources are not considered significant, as defined by the criteria for inclusion on the National Register, or have qualities and values that would not normally be affected by the common usages along these routes, may be designated as "open". BLM will monitor and assess these sites on a case-by-case basis to confirm that resource conflicts do not exist or that the sites are not eligible for inclusion on the National Register of Historic Places. If after review, it is determined that these routes may have or have had an adverse effect on historic properties, BLM will close these routes or will consult with SHPO on the appropriate course of action to resolve the effect.

Routes identified as having cultural resources located within the 600' APE that are listed, determined eligible, or likely to be considered eligible for the NRHP, and for which there is a likelihood that activities in the route might adversely affect the resource, will remain undesignated until such time that the specific cultural resource and route can be assessed in the field and resource conflicts can be identified and resolved through Section 106 review.

Under the No-Action Alternative, of the more than 3,305 sites identified within the planning area, 554 have been identified as located on BLM managed lands and falling within the 600' APE for routes that are under review for "open"designation. Of these, 184 sites have either been listed, determined eligible, or are considered likely to be eligible and 167 of these sites are considered to have qualities and values that might be adversely affected by activities authorized within the 600' APE of a route. In this alternative, 284 route segments have been identified having potential conflicts with cultural resources. These segments will not be designated either "open" or "closed" pending a physical assessment of the sites and evaluation of threat that proximity to an open route might pose. If it is determined that these routes may have or have had an adverse effect on historic properties, BLM will close these routes or will consult with SHPO on the appropriate course of action to resolve the effect.

Table 4-11 Correlation of Cultural Resources to Area of Potential Effect by Alternative

	CULTURAL RESOURCES WITHIN THE APE BY ALTERNATIVE				
	No Action	**Large DWMA Preferred**		**Small DWMA A**	**Small DWMA B**
	All BLM Lands	**Outside DWMA**	**Inside DWMA**	**Outside DWMA**	**Outside DWMA**
Cultural Resources within APE (300')	554	444	NA*	444	460
Cultural Resources within APE (100')	NA	NA	68	NA	NA
Total Cultural Resources within APE	554	512		444	460
Eligible Cultural Resources (Estimated)**	184	138	15	138	138
Eligible Resources Potentially Affected (Estimated)	167	121	10	121	121
Undesignated Route Segments Associated***	284	89	30	89	89
Linear Mile Segments	61	17	9	17	17

* NA = Not Applicable in Alternative

** Records for cultural resources identified as located within the APE of a route subject to designation were analyzed and resources were ranked in terms of potential eligibility and vulnerability to ground disturbing activities resulting from camping, parking off-road, hiking, etc.

*** Route segments are strictly a mapping convention and do not represent the linear miles of routes that will not be designated.

Competitive Off-Highway Vehicle Events

Under the No-Action alternative, competitive off-highway vehicle events will continue to be allowed on competitive recreation routes established through the CDCA plan. Event-specific NEPA analysis is required for competitive off-road vehicle events. Race events will be reviewed on a case-by case basis. Under the No-Action alternative, BLM would continue to review all projects for effects to cultural resources on a case-by-case basis as part of NEPA review at the time they are proposed

The Johnson Valley to Parker Race Event has been previously reviewed for cultural resources effects for an EIS completed in 1980. In that assessment, the proposed route and alternatives were surveyed at the BLM Class II level (reconnaissance). Several sites, as well as archaeological "districts", were identified along the race corridor, although the general conclusion was that site density was low along the corridor. In accordance with Section106, the Heritage Conservation and Recreation Service (HCRS) provided comments. HCRS argued that the preferred alternative did not adequately protect significant cultural resources and that mitigation measures were inadequate to protect the proposed archaeological districts. HCRS expressed concern about the impacts to areas containing values important to Native Americans. They also noted that the reconnaissance survey provided inadequate baseline data and that predictions of resources disturbance and development of a monitoring plan would have little value. HCRS recommended that the course be completely surveyed and evaluated with the maximum impact from long term use in mind.

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There are approximately 63 linear miles of competitive off-highway recreation routes in the NECO planning area. At present, there are 18 archaeological and historic sites identified as located within 300 feet of the race corridor. These sites will continue to be threatened under this alternative. These sites have not been evaluated for eligibility for inclusion on the National Register.

__From Issue 6: Land Ownership Pattern__
Under the No-Action alternative, adjustments to the land ownership pattern through acquisition and disposal of selected lands will continue. Lands identified for disposal will continue to be evaluated for effects to cultural resources during the environmental assessment process. No specific actions are proposed and no specific land parcels have been identified for disposal in the NECO planning effort. Specific proposals will be reviewed on a case-by-case basis. Significant cultural resources will be identified and reviewed for effects in accordance with Section 106 of NHPA.

In the process of identifying specific lands for acquisition and disposal, biological factors are the primary considerations contributing to the decision. The criteria developed for identifying lands for the protection and conservation of special status species, such as lands with springs and water sources, may also coincidently identify lands that are also associated with historic and archaeological sites. Acquiring these lands are also likely to result in greater protection for cultural resources. However, disposal of lands identified as having low qualities for habitat does not necessarily mean that those lands also have low values or qualities for cultural resources. Many sites, especially historic mining sites and sites associated with the World War II Desert Training Center / California - Arizona Maneuver Area were located for their associations with other factors, rather than specific biological and natural features. Springs and water sources are not necessarily indicators for these types of sites.

__From Issue 7: Access to Resources for Economic and Social Needs__
No specific actions are identified in this alternative that would require review under Section 106 for effects to cultural resources. In general, using land use designations to develop areas of conservation emphasis for desert tortoise and other species should have a concurrent benefit in protecting and preserving cultural resources located in those areas.

__From Issue 8: Incorporation of Wilderness Areas into CDCA Plan__
Incorporation of the 23 Congressional designated Wilderness Areas into the CDCA plan is an administrative action not subject to review under Section 106 of NHPA Nevertheless, the establishment of wilderness areas, while limiting ease of access and enjoyment of some cultural resources, also benefits cultural resources in limiting a broad range of activities, such as off-highway vehicles and mining, that often are in conflict with the preservation and protection of cultural resources. Designation should have a positive benefit to cultural resources as a result of increased protection and preservation.

__Cumulative Impacts__
In the No-Action alternative, BLM will continue to follow management prescriptions in the CDCA plan in meeting its responsibilities under the National Historic Preservation Act and its commitments under the Protocol Agreement with the California State Historic Preservation Officer. Actions that have the potential to affect cultural resources would be reviewed in consultation with the California SHPO under Section 106 of the NHPA, as implemented in

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Protocol Agreement. BLM would continue to review all projects for effects to cultural resources on a case-by-case basis as part of NEPA review at the time they are proposed.

There would be a indirect benefit to the protection, preservation and management of cultural resources under this alternative resulting from the adoption of National Fallback Standards and Guidelines for rangeland health standards. There would be a direct benefit to cultural resources protection resulting from the elimination of the Ford Dry Lake range allotment.

There would continue to be direct and indirect effects to cultural resources resulting from the continued use of "undesignated" routes, which for the most part are currently open to off-highway recreational vehicle activity. Almost all of these routes have not been surveyed and the extent of cultural resources in close proximity to these routes and the nature of any effects is yet to be determined.

4.1.13 Lands and Land Use Authorizations

From Issue 2: Recovery of the Desert Tortoise
Under this alternative there would be little change to the current management practices of processing for land use application - i.e., utilities and rights-of-way. Applicable mitigation measures and compensation are currently required for new impacts to desert tortoises and its habitat according to current policy. On a case-by-case basis there may be additional costs borne by the proponent to implement other mitigation measures such as specific design features, possibly fencing and bridges and culverts when new construction projects are proposed.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Under this alternative there would be little change to the current management practices of processing application for utilities and other rights-of-way. Habitat protection for special status species will continue to help define design and mitigation requirements for lands actions. Pre-project surveys, mitigation, and avoidance are required for some species.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation
There would be a slight loss of access from closing non-routes which could affect access to some private lands. Authorized use of closed routes or development of new routes would be considered for authorized actions including access to private lands where designated or existing routes are insufficient to meet needs.

From Issue 6: Land Ownership Pattern
Some simplification of the checkerboard ownership pattern is occurring in tortoise critical habitat which could simplify legal aspects of Lands actions which currently cross mixtures of public and private lands.

CUMULATIVE IMPACTS
Over a period of several decades access to and across public lands for various Lands and Rights-of-Way has been reduced due to withdrawals of public lands from the application of land laws. Permits processing and mitigation costs have also increased due to an increase in environmental issues as well. There are fewer opportunities for trans-desert transmission and pipelines as a result of military reservations, national parks, and BLM wilderness areas; however, undeveloped

portions of existing corridors should still be sufficient to absorb additional needs for the foreseeable future. Species issues will continue to increase as well. Land ownership consolidations should simplify legal aspects of access for rights-of-way and development of private lands. Uncoordinated land use planning and differing agencies' mandates add additional time delays and complexities to resolve. Beyond what is noted above this alternative would essentially not add additional restrictions or requirements to what has already occurred through other initiatives.

4.1.14 Socio-Economic Conditions

From Issue 1: Standards and Guidelines
Implementation of National Fallback standards on grazing allotments would result in minimal impact for most lessees. Increased coordination for the short-term with the BLM would directly affect all lessees. However, the two lessees with cattle operations would be affected over long-term with minor changes to current grazing activities to meet rangeland health standards. Changes in management would require additional costs for labor associated with movement and increased supervision of cattle, and over the long-term, increased costs associated with maintenance of additional range improvements. Costs associated with constructing new or replacement range improvements would have to be borne solely by the lessee or through cooperative efforts, costs could be split with the BLM, county, and other contributors to substantially or totally defray all costs. A lessee would incur increased costs for feeding or pasture if cattle are removed from a portion or all of the allotment to achieve standards. However, as rangeland health improves and resource objectives are achieved, greater benefits from more flexibility in grazing operations would be realized for the long-term.

Maintenance of standards would give the lessee greater flexibility to allow his livestock use of superior forage. Cattle operations could be negatively affected by increased public use of unique or riparian/wetland resources that have greatly improved with achievement of the standards. It is anticipated that benefits of additional revenue to the community from increased public use or visitation of these resources would offset the lessee's losses.

From Issue 2: Recovery of the Desert Tortoise
Current, socio-economic impacts to lessees that lease the Rice Valley and Ford Dry Lake Allotments would not change. There is one developed water source in the Chemehuevi Allotment. Construction of additional small water sources are proposed. Coordination with the BLM and installation of this improvement would impact the lessee. Developments proposed in Lazy Daisy Allotment would impact the lessee by increased coordination and cost associated with installation of improvements.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Current, socio-economic impacts to lessees that lease the Rice Valley and Ford Dry Lake Allotments would not change.

As there are few mitigation requirements to permits from other species, there would be little future impacts unless the sensitive status of some of these species were to change (become more sensitive or listed). Proposals for bighorn sheep/desert mule deer artificial waters would continue to be processed on a case by case basis which has proven to be costly (time) and has created a difficult to resolve tension among BLM, CDFG and other interests.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation
The closing of routes that would add to routes already closed through the CDPA in 1994 would bring the total roads closed to about 18%. This would have a minor affect upon casual use access and recreation.

From Issue 6: Land Ownership Pattern
Acquisition of private lands and disposal of Federal lands to achieve a simplification of the land ownership pattern would help both manageability of Federal lands and usability of private lands. For both this is a more cost effective pattern of ownership; however, the initiative would not be completely comprehensive and strategic from a conservation point of view and would still leave a difficult to manage land ownership pattern.

CUMULATIVE IMPACTS
Implementation of this alternative continues a certain cost of doing business that is inefficient, and, while creates little near-term change, risks long-term measures which have unknown draconian socio-economic implications if more species are listed as a result of a lack of a clear strategic conservation approach to species and habitats management. The current inefficiency mainly relates to the incomplete and case by case basis of addressing the consideration of species and habitats needs: conservation, compensation, mitigation, NEPA writing, and consultation with the USFWS.

Changes to the management of grazing leases and designation of routes of travel create additional minor impacts access and use of resources.

4.2 Preferred/Large DWMA Alternative

4.2.1 Air Quality

From Issue 1: Standards and Guidelines
Adoption of the regional standards for Public Land Health, and guidelines for grazing management would be similar to the No Action Alternative. However, the Regional Standards would apply on an area-wide basis rather than just grazing allotments. This additional area could contribute to improvement to air quality at a greater rate.

From Issue 2: Recovery of the Desert Tortoise
The designation of approximately 1,684,248 acres of Federal land as ACECs would have a slight positive effect on air quality through implementation of specific management prescriptions designed to reduce surface disturbance. The Chemehuevi DWMA (ACEC) reduces the amount of grazing by 158,928 acres and designates routes as open, closed or limited. The reduction in surface disturbance would increase vegetative cover on these acres, reducing the volume of PM_{10} emissions.

Restricting surface disturbing activities to 1% of the DWMAs potentially benefits air quality by reducing the amount of erosion and airborne pollutants such as PM_{10}. Additionally, requirements for vegetation restoration on disturbed sights will have positive benefits to air quality by adding vegetation cover.

Wildfire suppression efforts would result in reduced particulate (PM_{10}) production and visibility impairment from smoke and wild-blown dust. Short term impacts from suppression potential increase levels of particulates from surface disturbance of fire fighting equipment and operations. However, successful suppression efforts minimize the number of acres impacted as a result of vegetative cover loss.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Air quality would be enhanced by limiting future off-road vehicle activity to existing roads and trails . Competitive off-road vehicle activities are restricted to the Johnson Valley to Parker corridor and outside corridors if they meet the criteria. Competitive off-road vehicle activity has the potential to produce airborne particulate matter (PM_{10}), especially if events are conducted in areas where soils are susceptible to erosion. NECO Planning Area is in a Federal and state non-attainment area for PM_{10} and CO, events would further contribute to these pollutants.

With the deletion of Rice Valley and Ford Dry Lake Open Areas there is a positive benefit to air quality because of the reduction of airborne pollutants. Dust generated from the off-road vehicle activities at the newly designated Chemehuevi Open Area is not expected to significantly impact the area because the location is on the most easterly downwind portion of the non-attainment area.

CUMULATIVE IMPACTS
Impacts are similar to those discussed under the No Action Alternative.

4.2.2 Water Quality

From Issue 1: Standards and Guidelines
Adoption of the regional standards for Public Land Health, and Guidelines for grazing management will generally improve water quality from natural sources similar to No Action Alternative in grazing allotments. Water resources outside of allotments would derive a slight positive effect on water quality with implementation of BMPs.

From Issue 2: Recovery of the Desert Tortoise
The designation of approximately 1,684,248 acres of Federal land as ACECs would have a slight positive effect on water quality through implementation of specific management prescriptions designed to improve water quality and reduce surface disturbance. The reduction of livestock grazing and surface disturbing activities would improve vegetative condition and consequently result in better protective ground cover and soil-holding capability. Erosion and soil loss would be reduced and water quality improved as a result of better dissipation of energy associated with storm water runoff.

Elimination of grazing on 217,873 acres would result in potential improvement in water quality at spring sources through removal of coliform bacteria contamination. There would continue to be contamination at those springs within the open parts of the allotment.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Designation of a 80 % distribution WHMA will have a small positive benefit to water quality through the implementation of specific prescriptions aimed at improving habitat condition.

Closure of routes within 1/4 mile of a natural or artificial water source will have a small positive benefit to water quality by reducing soil erosion, soil loss and sedimentation contamination.

Improving vegetative conditions on Natural Communities such as springs and seeps, dunes and plays and microphyll woodland would have a positive benefit to water quality by improving protective ground cover and soil holding capability. Vegetation is a key component of a healthy watershed and as a result of improved dissipation of energy associated with storm water runoff, erosion and soil loss would be minimized improving water quality.

From Issue 4: Wild Horses and Burros
Some water resources outside the designated HMAs may benefit from the reduced burro activity. Water resources can be impacted through soil compaction and the reduction of vegetative and litter cover that reduces infiltration and increases storm water runoff and sedimentation. Additionally, the water quality at some springs would be expected to improve with the removal of burros from the reduction of coliform bacteria contamination.

CUMULATIVE IMPACTS
Impacts are similar to those discussed under the No Action Alternative.

4.2.3 Soil Quality

From Issue 1: Standards and Guidelines
Adoption of the regional standards for Public Land Health, and guidelines for grazing management are similar to the No Action Alternative where grazing continues. Implementation of standards throughout the Planning Area would result in a slight positive benefit to soil quality.

From Issue 2: Recovery of the Desert Tortoise
The designation of approximately 1,684,248 acres of Federal land as ACECs would have a slight positive impact on soil quality through implementation of prescriptions aimed at improving habitat conditions and reducing impacts from surface disturbing uses.

Reducing grazing activities on 217,873 acres would result in slight improvement in soil quality primarily through reduction of removal of vegetative and litter cover which protects the soil from erosional processes. In addition, there would be a slight improvement in soil permeability around springs and seeps which would reduce soil loss through storm water runoff.

Soil disturbance would occur with the development of range improvements in the Lazy Daisy Allotment. Under this alternative, there would be construction of 18 miles of fence, 4 miles of water pipe, 3 cattleguards, 6 water facilities, and 4 water sites within the allotment to improve cattle distribution and to meet standards. There would be a significant impact to soils from compaction and disturbance during installation of fence, springs, pipeline, corrals, wells, and cattleguards. Compaction and disturbance of soil are expected when hauling equipment, materials and personnel to work site. Impacts to soils are expected to recover during the short-term. Some impacts from compaction would be offset when cattle modify current trailing to new facilities. Cattleguards placed along a fence in the road would result in negligible impacts to the surrounding soil.

Limiting surface disturbing activities to one percent inside the DWMAs could have a positive

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impact on soil quality. Activities which cause the vegetation cover and litter to be diminished leave soils vulnerable to both water and wind erosion particularly if the activity occurs within areas with highly susceptible soils.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Designation of a 80 % distribution WHMA will have a small positive benefit to soil quality through the implementation of specific prescriptions aimed at improving habitat condition.

Improving vegetative conditions on Natural Communities such as springs and seeps, dunes and plays and microphylli woodland would have a positive benefit to soil quality by improving protective ground cover and soil holding capability. Vegetation is a key component of a healthy watershed and as a result of improved dissipation of energy associated with storm water runoff, erosion and soil loss would be minimized.

From Issue 4: Wild Horses and Burros
Reducing the Herd Management Areas by ( ) acres may have a positive benefit to soil quality through the preservation of vegetative cover and resultant decrease in erosion and soil loss. Burros will continue to graze on the Chemehuevi HMA and the Chocolate/Mule Mountains HMA which may result in continued impacts to soil quality from reduction of vegetative and litter cover that protects the soil from erosional processes and, and to some degree, soil compaction which channels and concentrates storm water runoff.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Soil quality would be improved by limiting future off-road vehicle activity to existing roads and trails. Competitive off-road vehicle activities are restricted to the Johnson Valley to Parker corridor and outside corridors if they meet the criteria. Competitive off-road vehicle activity has the potential to impact soil resources through disturbance of soils which leave them vulnerable to soil erosion.

With the deletion of Rice Valley and Ford Dry Lake Open Areas there is a positive benefit to soil quality because of the reduction of soil disturbance. The soil resource is expected to benefit through the preservation of areas presently undisturbed.

CUMULATIVE IMPACTS
Impacts are similar to those discussed under the No Action Alternative.

4.2.4 Vegetation Management

From Issue 1: Standards and Guidelines
General Vegetation: Impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative inside grazing allotments. Management of soil and vegetation resources are expected to improve slightly as non-compliance areas begin to meet standards.

Biological Soil Crusts: Slight improvement may be seen in areas where grazing use has been canceled, otherwise impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative for areas that are grazed.

Riparian/Wetland: Impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative. Cancellation of the northern and eastern portions of the Lazy Daisy Allotment would positively affect riparian/wetland areas in those areas.

Noxious Weeds: Impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative.

Trends and conditions for vegetation outside allotments would continue from implementation of standards.

From Issue 2: Recovery of the Desert Tortoise

The effects on natural communities, ecosystem processes, and special status plants in the Preferred/Large DWMA Alternative are similar in nature to the impacts described for the No Action Alternative, but are reduced somewhat based mostly on the establishment of DWMAs where some uses are restricted. Specific differences in impacts between the Preferred/Large DWMA Alternative and the No Action Alternative are described below.

Natural Communities

Managing 1,684,248 acres of DWMA would enhance natural communities by increasing the amount of each community inside an area of protection. Table 4-12 shows the acres and percent of each natural community within the DWMA. The DWMAs can augment the portions of each natural community that are in JTNP, CMAGR, and BLM wilderness.

Table 4-12. Acres and percent of total of each natural community within large DWMAs.

Natural Community	DWMAs
Sonoran Desert Scrub	1,139,072 (30)
Mojave Desert Scrub	230,903 (29)
Desert Dry Wash Woodland	312,556 (46)
Mojave Pinyon/Juniper Woodland	
Desert Chenopod Scrub	
Playas	1,142 (1)
Springs and Seeps (no. of sites)	38 (27)
Sand Dunes	

DWMAs will receive added protection from the limit of 1 percent on new surface disturbance. Although projected levels of new surface disturbance are below 1 percent, the limitation shows an agency commitment. The prohibition on disposal of lands in the DWMAs together with continued acquisition of private and State lands will provide additional safeguard against surface disturbance.

Grazing would be excluded from the highest density tortoise habitat in the Lazy Daisy Allotment and the Chemehuevi Allotment would be deleted in this Alternative. Comparing Table 4-13 to Table 4-21 shows that more lands will be grazed than in the Small DWMA A Alternative (grazing excluded from DWMAs), but the additional grazed lands fall mostly in Sonoran Desert Scrub and Mojave Desert Scrub which are the most common and least sensitive natural communities. The amount grazed is less than in the No Action Alternative, mostly in these two natural communities.

Elimination of grazing would increase above-ground biomass with plant reproductive capability maintained or enhanced. The health of mature plants would be maintained or improved. Abundant immature plants would successfully become established, increasing litter potential for soil stabilization.

Improved grazing management practices through implementation of the Standards and Guidelines will result in reduction of damaging impacts from cropping associated with year-long livestock grazing. An increase in canopy cover and plant vigor is expected. If grazing use exceeds established levels, livestock would be removed or moved to another part of an allotment. In the long term, under properly managed rangelands, species diversity and ecological condition should be maintained or improved.

This alterative would provide for the orderly deletion of the Lazy Daisy allotment upon request of the lessee. This is intended to allocate the land to tortoise conservation upon request; this would be expected if a conservation organization purchased the allotment base property.

Table 4-13. Acres and percent of total of each natural community within BLM cattle grazing allotments: Lazy Daisy Cattle.

Natural Community	Lazy Daisy Cattle
Sonoran Desert Scrub	98,482 (3)
Mojave Desert Scrub	207,450 (26)
Desert Dry Wash Woodland	3,378 (<1)
Mojave Pinyon/Juniper Woodland	1,928 (10)
Desert Chenopod Scrub	
Playas	
Springs and Seeps (no. of sites)	16 (11)
Sand Dunes	
All NECO lands	311,279 (6)

Ecosystem Processes

Ecosystem processes will be improved as habitat disturbance reduced is by protective measures and rehabilitation projects. Raven management efforts are aimed at bringing raven predation to natural levels. Various measures to reduce surface disturbances will aid in combating the spread of exotic species. Notwithstanding these measures, the import of nutrients through smog from urban areas may increase the competitiveness of some weedy species over a wide area.

Special Status Plants

The various conservation benefits described in sections 2.2. and 2.3 for the Conservation Zone would also benefit all but three special status plants (Howe's hedgehog cactus, Wiggin's cholla, and White margined beardtongue) to a very high degree as shown on Table N-12 Appendix N. These three plants would still be protected outside the Conservation Area, but the protection may be more difficult given the management context.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Impacts and potential impacts from OHV use of Ford Dry Lake and Rice Valley Open Areas will be eliminated.

Tamarisk removal will receive additional emphasis in rare and sensitive natural communities. Although vegetation harvesting will not be allowed (except for salvage), the amount and effects of this activity as generally administered are very low

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Benefits and impacts related to LTVAs is the same as for the No Action Alternative.

Elimination of the *Parker 400* and the MUC criteria for new race routes would eliminate all impacts associated with such events anywhere in the Planning Area except for the Johnson Valley route, which would remain designated. Impacts described in the No Action Alternative generally apply, but stipulations listed in section 2.5 would mitigate them somewhat. The alignment of the course is in relatively low value habitat and has no serious proximity to special status plant species.

CUMULATIVE IMPACTS

General Vegetation

Effects on general vegetation will be similar to the No Action Alternative except for the following items.

Vegetation communities will benefit from the designation of DWMAs and the associated conservation measures. CDCA special management areas, proposed to be deleted, are completely or largely absorbed into a complex of management areas called the Conservation Zone (Table O-7 Appendix O).

Reductions in burros will improve vegetation resources, especially riparian vegetation around springs and seeps. Elimination of grazing from the Rice Valley, Ford Dry Lake, and Chemehuevi Allotments may improve vegetation slightly; however, grazing is light and only occasional in these allotments.

The designation of routes and reduction in the route network will reduce route proliferation and reduce the rate of spread of alien plants along route corridors. Closure of three dunes and two playas to OHV use will aid in restoration of vegetation communities in and around them. Restrictions on parking and camping to 100 feet of open routes will reduce vegetation crushing by vehicles in these activities.

Compensation for disturbance of Desert Dry Wash Woodland, Desert Chenopod Scrub, Sand Dune, and Playa communities may deter disturbance. Enhancement of vegetation at springs and seeps will benefit vegetation in localized sites.

Special Status Plants

Effects on special status plants will be similar to the No Action Alternative except for some benefits that will result from reduced uses and increased protection as described for general vegetation.

Biological Crusts

Effects on biological crusts will be similar to the No Action Alternative except for some benefits that will result from reduced uses and increased protection as described for general vegetation.

Riparian/Wetland

Effects on riparian and wetland areas will be similar to the No Action Alternative except for some benefits that will result from reduced uses and increased protection as described for general vegetation.

Noxious Weeds

Effects of noxious weeds will be similar to the No Action Alternative except that the reduction in disturbance and the reduction in route network as described for general vegetation will reduce the potential for invasion of noxious weeds.

4.2.5 Wildlife Management

From Issue 1: Standards and Guidelines

The effects of the Preferred Alternative will be similar to the No Action Alternative, however, since the guidelines are stronger and more definitive in the Preferred Alternative, greater benefits for wildlife communities can be expected.

From Issue 2: Recovery of the Desert Tortoise

Desert Tortoise

The establishment of the Chuckwalla DWMA and Chemehuevi DWMA constitute a major change in the planning environment for BLM lands and CMAGR. The establishment of the Joshua Tree DWMA will not change management in JTNP to the same degree. The BLM desert tortoise habitat category map will change to correspond to the DWMAs. Restrictions and management policies in the tortoise Rangewide Plan and Statewide Plan for Category I will be applied to the DWMAs. At a future date, it is anticipated that USFWS will change critical habitat to correspond to the DWMAs.

Most of the benefits from this issue arise from establishment of the DWMAs and management actions proposed for the DWMAs. The Chemehuevi and Chuckwalla DWMAs cover 886,578 and 797,670 acres, respectively. Table 4-14 shows the size of each DWMA and the amount and percent of critical habitat included in the DWMAs. The percent of critical habitat in all DWMAs is about 76 percent in this alternative. Both DWMAs are considerably above the minimum size recommended in the Recovery Plan. BLM desert tortoise habitat would be changed to correspond to the DWMAs.

Table 4-14 Desert Tortoise and large DWMAs

Desert Tortoise	Chemehuevi DWMA	Chuckwalla DWMA	JTNP, CMAGR, wilderness, DWMAs
Total size	888,636	798,338	
Critical Habitat (%)	813,200 (35)	785,550 (34)	1,778,532 (76)

In all alternatives (except No Action) habitat restoration efforts would be increased, public education would be enhanced, and mechanisms for improved interagency cooperation would be established. All of these would benefit desert tortoise directly or indirectly.

Overall, surface disturbance in DWMAs would be reduced by limitations on and tracking of new disturbances. Although new surface disturbances are not to reach this level for decades, the commitment will ensure that disturbances are minimized, that new disturbances are recorded, and rehabilitation is given a high priority. Fixing compensation at 5:1 in Category 1 (i.e., DWMAs) would not be a significant change from the current formula.

The elimination of grazing from the highest density tortoise habitat would relieve the effects of tortoise and burrow trampling and forage competition. The last is most likely to occur during years of low rainfall when cattle may eat scarce annual forage. In addition vegetative cover would improve as the plants are not cropped. Some grazing of DWMA and critical habitat would continue, but it would be the least important habitat for tortoises. The elimination of the Chemehuevi Allotment would have only slight benefit because the allotment is only rarely grazed and very lightly then. Restrictions on ephemeral authorizations and grazing in tortoise habitat in years of low annual production (i.e., less than 230 lbs./ac.) would reduce competition for annual forage. Other grazing restrictions measures would further reduce tortoise mortality or forage loss.

The fencing of Interstate Highway 10 and 40 through or alongside DWMAs and portions of State Highway 95 will reduce tortoise run-over mortality greatly and allow natural restoration of depleted populations along these highways. The negative effects of population fragmentation on population genetics will not be significant for more than a century due to the long tortoise generation time. The small amount of interchange needed for genetic viability will presumably be satisfied by movements under bridges and through culverts. The reduction in all wildlife deaths (especially snakes, lizards, rodents, and rabbits) will also reduce raven food supplementation and hence mortality of hatchling and juvenile tortoises.

Closing some roads following the criteria noted in section 2.5 will benefit the tortoise through reduced vehicle mortality and illegal collection. The proposed "open" road designations would result in 22 miles per township (36 sections) for the Chemehuevi DWMA and 28 miles for the Chuckwalla DWMA - not counting areas of "open" washes systems.

The closure of washes to vehicles in some areas of the DWMAs will reduce tortoise mortality and crushing of burrows. However, there will remain substantial areas of DWMA where washes remain open for vehicle use. Tortoises commonly use the banks of washes for burrowing.

The removal of ravens known to prey on tortoises would reduce tortoise mortality and aid in recruitment of young into the population. This is especially important in populations reduced by disease.

Bighorn Sheep

In this Alternative the 1,684,248 acres of designated DWMAs cover 26%of the range of bighorn sheep. Table 4-15 shows the acres and percent of range of bighorn sheep in the two DWMAs. Furthermore, in the Preferred/Large DWMA Alternative there is a limit of 1 percent on new surface disturbing activities. Most of this is likely to be on BLM-administered lands that are not in designated wilderness. Possible positive effects from this limit on surface disturbance include: commitment from the BLM to limit the amount of surface disturbance inside DWMAs, creating an incentive for projects to locate outside DWMAs and creating a GIS data base to tract disturbances.

Table 4-15 Acres and percent of area for three categories of bighorn sheep use in the Chuckwalla DWMA, Chemehuevi DWMA.

Bighorn sheep use categories	Chemehuevi DWMA	Chuckwalla DWMA
Occupied Range	186,327, (11)	269,384 (16)
Unoccupied Former Range		1,855 (1)
Movement Corridor	223,975 (37)	26,093 (4)

The effects of reducing cattle grazing by 34% include a reduction in competition for forage; decrease in vegetation composition alternation; lower frequency of diseases; and an improvement in water quality at water sources. Table 4-16 shows the acres and percent of bighorn sheep range within the two cattle allotments. The table shows that the acres of bighorn sheep range within cattle allotments is nearly the same as the No Action Alternative.

Table 4-16. Acres and percent of area for three categories of bighorn sheep use within the two cattle allotments..

Bighorn sheep use categories	Lazy Daisy Cattle	Chemehuevi Cattle
Occupied Range	125,411 (7)	2,643 (<1)
Unoccupied Former Range		
Movement Corridor	105,438 (18)	60,976 (10)

Other Special Status Animals

Designation of 1,684,248 acres of DWMA will have direct benefits to many special status animals through the implementation of prescriptions aimed at improving habitat conditions and reducing surface disturbing activities. Table N-8 shows the acres and percent of the range of each special status animal within the larger proposed DWMAs.

Limiting surface disturbing activities to 1% of the DWMAs will have a positive impact on many species by potentially reducing impacts from habitat reduction. Most projected disturbance is likely to be on BLM-administered lands that are not in designated wilderness. Increased coordination on planning and implementation of the NECO Plan through the Desert Managers Group and annual NECO Cooperator's meeting will improve management effectiveness.

Positive impacts resulting from the closure of washes to vehicle travel include a reduction in the destruction of vegetation along banks where vehicles travel out of the wash bottom. Additionally, an improvement in the stabilization of the bank may be seen. Long term disturbance from vehicle travel can include; loss of topsoil; loss of water-storage capacity of soil and permeability due to soil compaction; and increased occurrence of exotic plant species. The inclusion in the DWMA of an area where navigable washes are open (Map 2-10 Appendix A) would reduce the overall positive benefits compared to the Small DWMA A Alternative for special status animals. Table N-10 Appendix N shows the acres and percent of the range of special status animals that are in the combined open wash areas in the DWMAs.

Eliminating cattle grazing from the areas of highest desert tortoise density will result in little net change for special status animals.

The fencing of 208 miles of highways would alter the barrier effects of linear transportation corridors. More specifically, passage of most rodents, lizards, small snakes, and tortoises would be greatly reduced. The spacing of gaps (i.e., culverts, bridges) would be critical in the maintenance of minimal gene flow. In some cases, culverts and/or bridges might be added as the fencing is installed during highway or roadway upgrade. Passage of other animals (carnivores, birds, bats, larger snakes) would likely not be affected greatly. The fencing would significantly reduce the mortality of rodents, lizards, small snakes, and tortoises; however, most of these species, except notably desert tortoise, have a reproductive capacity which can overcome this localized mortality.

From Issue 3: Management of Special Status Animals and Plants and Natural communities

Bighorn Sheep

Impacts are reduced somewhat based on the establishment of two bighorn sheep WHMAs consisting of all "occupied habitat," "movement corridors," and "Unoccupied former range". Various bighorn sheep management actions are proposed specifically for the bighorn sheep WHMAs. Specific differences in impacts between No Action Alternative and the Small DWMA A Alternative are described below.

Table 4-17 shows the acres and percent for the two bighorn sheep WHMAs. A total of 23 percent of the occupied range lies within the proposed DWMAs; some of this includes BLM wilderness as shown in Table 4-1 for the No Action Alternative.

Table 4-17. Acres and percent of area for bighorn sheep WHMAs.

Bighorn sheep use categories	Bighorn WHMAs
Occupied Range	1,716,132
Unoccupied Former Range	232,282
Movement Corridor	601,327

Benefits of designation of the Multi-Species WHMA are similar to those described for natural communities. In addition, lands will be acquired in the conservation zone, reducing the likelihood of surface disturbing development.

The deletion of all bighorn habitat management plans would have no significant effect because the actions in the HMPs are fully implemented and the actions proposed herein provide more protection and enhancement of habitat.

Specific actions addressing bighorn sheep will benefit the metapopulations overall. The acquisition of lands will protect against adverse development on private lands. The fencing of potential hazards to bighorn sheep will decrease mortality from accidents. Elimination of the five existing bighorn sheep HMPs will have little effect as the NECO Plan replaces the measures in these plans. Annual CDFG survey flights and time-lapse cameras at water sites (some being done now) will improve the capability for adaptive management. Improved coordination on public education, research, and monitoring will improve management capabilities.

The proposed augmentation of six demes in all the alternatives will aid in ensuring stability of individual demes and, thereby, viability of the metapopulation on a whole. Similarly reestablishment of three lost demes in the *Sonoran Metapopulation* will give a greater number of demes and, thereby, increase viability of the metapopulation. The elimination of domestic sheep within a nine-mile buffer zone around existing or reestablished demes will guard against disease transmission (nose-to-nose or gnat-borne) and an epidemic that could decimate the reestablished deme as well as nearby demes.

The addition of 87 new water developments (Map 2-19 Appendix A) for the Sonoran Bighorn Sheep Metapopulation (29 for bighorn sheep only and 58 for burro deer and bighorn sheep dual use) will provide a greater distribution of bighorn sheep within the "occupied range." That is, the installation of new waters will give access to additional forage more distant from existing waters. With more food and water available (i.e., accessible), the number of bighorn sheep in each deme can be expected to increase, to the extent that other essential habitat features (e.g., escape terrain, thermal cover) are available. Increased population size will increase the viability of individual demes and, thereby, the metapopulation as a whole. Comparing an artificial water site to a dry site, Cutler and Morrison (1998) found that rodent and reptile populations were affected little, but bird and amphibian abundance and species richness were higher at the watered sites.

The need for drinking water and the utility of artificial water developments has been the focus of some research and much contention in land management in recent years. McCarty and Bailey (1994) review some of the literature on bighorn sheep need for and use of drinking water. Andrew *et al.* (1999) found that in a study area in the southeast corner of the NECO Planning Area a population of bighorn sheep experienced a severe drought between 1995-1998. During this time, isolated water sources dried up and access by bighorn sheep to the Colorado River was severely restricted. The bighorn population declined during this time from about 160 to less than 50. They concluded that drinking water sources were a necessary habitat feature in the study area.

Water developments will be designed as generally described in Appendix M. No new waters are proposed at this time for the Southern Mojave Bighorn Sheep Metapopulation.

Closure of some routes near natural or artificial water sources will reduce disturbance of bighorn sheep at critical sites. Jorgensen (1974) found that a desert water source was used 50 percent less on days with vehicle traffic.

Burro Deer

The addition of 108 new water developments (Map 2-19 Appendix A) for burro deer (50 for deer only and 58 for deer and bighorn sheep dual use) will provide for a larger distribution of deer within their range, especially for does and fawns which stay closer to water. That is, with the addition of new waters, there will be greater access to additional forage more distant from existing waters. With more food and water available (i.e., accessible), the number of deer can be expected to increase. Increased population size will increase the overall deer population viability. Burro deer will receive added protection from route closures near water development.

Other Special Status Species

Benefits of designation of nine Multi-species WHMA are similar to those described for natural communities. In addition, project related inventories for special status animals will occur in the conservation zone resulting in additional information on the distribution and habitat use of special status animals. Lands will be acquired in the conservation zone, reducing the likelihood of surface disturbing development.

The deletion of Milipitas Wash habitat management plans and Chuckwalla Bench ACEC would have no significant effect on special status animals because the actions proposed herein provide more protection and enhancement of habitat.

Bat gates constructed on caves and shafts where bats might be harmed would give needed protection against disturbance at critical sites. The withdrawal from mining of some large bat roost sites would prevent destruction from mining. Route closures near some significant bat roosts would reduce the likelihood of disturbance at a critical site.

Prairie falcon and golden eagle eyries would receive some protection from route closures and mining and other disturbances. Increased monitoring of eyries will aid in preventing disturbance. Elf owl habitat at Corn Springs will be enhanced by improvements to habitat and removal of European starlings. Burrowing owls will be aided by a seasonal restriction on projects during the breeding season.

Couch's spadefoot toad will receive additional protection from mitigation measures, permanent fencing where necessary, and closure of some routes near habitat. Compensation requirements at 3:1 will discourage surface disturbance in Desert Dry Wash Woodland and aid in habitat acquisition for Couch's spadefoot toad.

Closures of certain dunes will protect sensitive and scarce habitat for Mojave fringe-toed lizard. Compensation requirements at 3:1 in Sand Dunes will discourage surface disturbance in dunes and aid in habitat acquisition. The removal of sheep grazing allotments, if and when it occurs, will slightly benefit dune species such as Mojave fringe-toed lizard in the Rice Valley and Ford Dry Lake Allotments.

Ford Dry Lake and Rice Valley Open areas would be closed which would further reduce impacts to wildlife.

A compensation requirement of 3:1 in Desert Dry Wash Woodland will aid riparian-obligate species by discouraging development and aiding in habitat acquisition.

Closure of some routes will reduce the amount of habitat subjected to occasional disturbance from vehicles, especially for the target species of the closures. Routes were reduced with special consideration for California leaf-nosed bat maternity and hibernation roosts, other significant bat roosts, prairie falcon and golden eagle eyries, Couch's spadefoot toad habitat, and deer watering sites. Table N-9 shows the resulting number of miles of road per square mile in the range of each special status animal; these numbers do not include navigable washes in areas where they may be driven. The average number of miles per square mile is 0.6 for the Planning Area. The route density is highest in the range of burro deer, Gila woodpecker, and yellow warbler. Navigable wash areas are found within the range of these species, also.

From Issue 4: Wild Horses and Burros

Desert Tortoise

Eliminating burro grazing inside DWMAs will have a positive effect on tortoises over the long term by reducing competition for forage and trampling of vegetative cover. Areas with past overgrazing would be allowed to recover which would increase the amount of forage and cover for desert tortoise and other wildlife.

Bighorn Sheep

The negative effects of burros on bighorn sheep would be reduced somewhat by the fencing of 1/3 of the natural waters within occupied range. Some of the additional waters fenced for deer (1/3 of natural waters) might be in occupied range also or in movement corridors. Cleary (1973) showed that burros can be excluded from a water source and forced out of an area by fencing the water sources. Protective fencing will likely be according to the design described by Andrew *et al.* (1997). Additionally, negative impacts such as competition for forage, damaging water sources, trampling of soil and denudation of vegetation would be expected to decrease as burro grazing was reduced. The maintenance of burro HMAs (Table 4-18) would be significant compared to the Small DWMA A Alternative where burros are eliminated. The acres and percent of bighorn sheep range within burro HMAs would be significantly lower than the No Action Alternative, also. The percent of occupied range within HMAs would decrease from 19 percent to 11 percent. The percent of movement corridors within HMAs would decrease from 17 percent to 11 percent.

Table 4-18. Acres and percent of area for three categories of bighorn sheep use within burro herd management areas.

Bighorn sheep use categories	Chemehuevi HMA	Chocolate Mule Mts. HMA
Occupied Range	68,631 (4)	118,123 (7)
Unoccupied Former Range	0	11,989 (5)
Movement Corridor	20,562 (3)	49,456 (8)

Burro Deer

The impacts on burro deer would be similar to those described for bighorn sheep.

Other Special Status Species

The maintenance of burro herd management areas would be significant compared to the Small DWMA A Alternative where burros are eliminated. Five special status animal species would

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have more than 10 percent of their range in a burro HMA (see Table N-7 Appendix N).

The negative effects of burros on some special status animals, and burro deer in particular, would be reduced somewhat by the fencing of some of the natural waters for benefit of bighorn sheep or burro deer.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

Designating routes of travel as "open," "limited," and "closed" will result in a decrease in impacts associated with off-road activities, such as habitat degradation, proliferation of roads, harassment of wildlife and road kills. Discussion in section 4.2.4, Issue 5 (roads and competitive events) applies here as well.

The nature of benefits and impacts described in section 4.2.4, Issue 5, apply to wildlife as well.

Analysis of Table n-10 Appendix N indicates that miles of roads in wildlife habitats is relatively low. Burro deer, Gila woodpecker and Yellow warbler have the highest roads presence at 1 to 1½ miles per section.

CUMULATIVE IMPACTS

General Wildlife

Effects on general wildlife will be similar to the No Action Alternative except for the following items.

General wildlife will benefit from the designation of DWMAs and the associated habitat conservation measures. For example, the elimination of the Chemehuevi Allotment and portions of the Lazy Daisy Allotment within the DWMA will reduce trampling of animal burrows and competition for forage with wildlife species. The fencing of highways will reduce roadkill mortality for many mammals and reptiles. Reductions in burros will improve conditions for wildlife, especially migrating songbirds and bats and resident wildlife that use springs.

Various measures that target special status animals will also benefit animals in the same habitat. For example, swifts, swallows, owls, ravens, and other cliff dwelling birds and mammals will benefit from measures protecting raptor eyries.

A raven reduction program will reduce predation by ravens on other wildlife species, if any, that may be receiving unnatural levels of predation by ravens.

The designation of routes will provide increased protection against habitat disturbance and other negative effects of human activities in an area. Closures of routes near springs and seeps and habitats of various special status animals will also reduce vehicle-related effects. The closure of three Sand Dune communities and two Playas will also benefit general wildlife populations in these rare habitats. Reductions in camping and parking off of routes from 300 feet to 100 feet will reduce vehicle destruction of microhabitats used by wildlife in the vicinity of routes.

Desert Tortoise

Effects on tortoise will be similar to the No Action Alternative except for the following items.

Tortoise conservation will benefit from the designation of three large DWMAs. This alternative has the largest DWMA size. Management policies associated with BLM's Rangewide Tortoise Plan and California Statewide Tortoise Management Policy (as applied through desert tortoise habitat Categories) will be retained.

Eliminating the Chemehuevi Allotment and reducing the Lazy Daisy Allotment will reduce trampling of tortoises and burrows and eliminate competition for forage, if any. Improved management of burros will aid in restoration of some damaged tortoise habitat.

Fencing of Interstate and State highways will reduce tortoise mortality and allow the reestablishment of populations along these highways. Reductions in roadkills of other wildlife (especially small mammals and reptiles) will reduce raven food, raven populations, and tortoise hatchling predation. In addition, a comprehensive raven predation control program will reduce excessive predation by ravens on hatchling and juvenile tortoises.

The designation of routes will provide increased protection against habitat disturbance. Reductions in the route network will reduce tortoise roadkills and other negative effects of human activities in an area. Reductions in camping and parking off of routes from 300 feet to 100 feet will reduce tortoise run over and burrow destruction off of routes.

Other Special Status Animals
Effects on other special status animals will be similar to the No Action Alternative except for the following items.

Special status animals will benefit from the designation of DWMAs and the Multi-species WHMA and the associated conservation measures. Measures targeted at specific special status animals or habitats will benefit these species directly.

Elimination of the Ford Dry Lake and Rice Valley allotments will give added protection against disease for nearby bighorn sheep populations. Construction of 87 new artificial water sites for bighorn sheep and 50 for burro deer will provide access by these species to large areas of usable range. This will result in an increase in size and stability of the bighorn sheep demes and the burro deer population. The allocation of natural waters to burros, bighorn sheep, and burro deer will aid in conserving bighorn demes. Reestablishing three lost bighorn sheep demes will aid in ensuring metapopulation viability.

4.2.6 Wilderness Management

From Issue 1: Standards and Guidelines
Managing ecosystem health in accordance with Regional Standards, which pertain to soils, riparian and wetland areas, stream function, native species, and water and air quality, and managing grazing activities in accordance with the specified regional guidelines would benefit wilderness resources in the same manner as described for the No Action Alternative (see *Issue 1*, section 4.1.6).

From Issue 2: Recovery of the Desert Tortoise
Whereas motorized vehicles are prohibited in wilderness except as authorized by the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans, the extent to which unacceptable impacts to wilderness resources occur consequent to

motorized-vehicle travel is proportional to the manner and degree of *unauthorized* incursions into wilderness areas. Under this alternative, motorized-vehicle access to wilderness boundaries would be somewhat reduced relative to the No Action Alternative with establishment of "washes closed zones" in DWMAs to protect the desert tortoise (see section 2.2) and application of biological parameters for the management of special status animals and plants and natural communities (see section 2.3). As opportunities for access to wilderness boundaries are reduced, the potential for unauthorized incursions into wilderness is concomitantly decreased. The extent to which such incursions are anticipated is undetermined.

Elimination of grazing in the Lazy Daisy allotment where the highest density tortoise habitat occurs would likely enhance natural conditions within portions of the Old Woman Mountains and Turtle Mountains Wilderness Areas. Natural systems would be more likely to freely function absent the grazing of cattle. If the lessees voluntarily relinquish all grazing use authorizations for the Lazy Daisy Allotment and no other grazing authorizations are approved for it, natural conditions would likewise be enhanced within portions of the aforementioned wilderness areas. In general, management actions that move a wilderness from its existing condition to one of less human influence within legal constraints would benefit wilderness resources.

Changing the "perennial/ephemeral" designation of the Lazy Daisy Allotment to "perennial only" would reduce the frequency of grazing in the Old Woman Mountains and Turtle Mountains Wilderness Areas, thereby reducing the impacts of grazing to the free functioning of natural systems. Terminating the Chemehuevi Allotment would likewise allow natural systems in the Chemehuevi Mountains Wilderness to more freely function where cattle had once grazed.

None of the actions specific to recovery of the desert tortoise as proposed in the NECO Plan under this alternative are anticipated to adversely affect wilderness resources. In general, such actions would likely benefit wilderness resources to the degree that natural conditions would be preserved, and plant and animal diversity would be protected. Site-specific projects to facilitate recovery of the desert tortoise would require separate environmental review, including a "minimum tool analysis" which specifies the manner in which projects are to be completed. Projects not conforming with provisions of the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans would not be allowed.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
The effects of applying "biological parameters" in the management of motorized-vehicle access would be the same as discussed under *Issue 2* (this section).

Actions that maintain or enhance populations of special status animals and plants, and preserve or restore natural communities would have no effect on, or may benefit wilderness resources to the degree that natural conditions would be preserved, and plant and animal diversity would be protected. Site-specific projects would require separate environmental review, including a "minimum tool analysis" which specifies the manner in which projects are to be completed. Projects not conforming with provisions of the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans would not be allowed.

Of particular concern is the proposal to construct new water developments to expand usable habitat for bighorn sheep (see section 2.3). Expansion of usable habitat has been identified as an important component of a conservation strategy to ensure long-term viability of the Sonoran

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Desert and Southern Mojave Desert Bighorn Sheep Metapopulations.

Under this alternative, 24 new guzzlers for use by bighorn sheep would be constructed in wilderness areas within the NECO Planning Area to ensure viability of the Sonoran Desert Bighorn Sheep Metapopulation (see Map 2-19 Appendix A; proposed sites are mapped as *general* locations). Clearly, wildlife water developments may be constructed in wilderness under certain circumstances (see section 3.6, Wilderness); such developments are not categorically defined as nonconforming uses. Although construction of facilities to enhance an area's value for wildlife is not consistent with the free operation of natural processes, such measures may be necessary for the continued existence or welfare of wildlife living in wilderness, particularly in the case of species adversely affected by human activities. Permanent installations to maintain conditions for wildlife may be permitted:

- if the resulting change is compatible with preserving wilderness character;
- if the resulting change is consistent with wilderness management objectives for the area; and
- if they are the minimum necessary to accomplish the task.

Preservation of wilderness character:

The following characteristics are identified in the Wilderness Act to define and describe a wilderness area. Wilderness is an area:

(a) where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain;
(b) of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation;
(c) which generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;
(d) which is protected and managed so as to preserve its natural conditions;
(e) which has outstanding opportunities for solitude or a primitive and unconfined type of recreation;
(f) which has at least five thousand acres of land or is of sufficient size to make practicable its preservation and use in an unimpaired condition; and
(g) which may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

These attributes serve as objectives to guide actions pertaining to the preservation and use of wilderness areas.

Twenty-two bighorn sheep guzzlers, given their design and distribution as proposed, would not substantially affect the overall natural character of any particular wilderness area. Mitigations developed through project-specific environmental assessments would ensure that water developments are constructed in a manner that minimizes their visibility. Except when in very close proximity to individual guzzlers, each wilderness area would continue to appear as though it has been affected primarily by the forces of nature. These water developments would be substantially unnoticeable in the wilderness landscape.

During periods of construction, opportunities for solitude or a primitive and unconfined type of recreation would be adversely affected, but such impacts would be localized and would occur only during the construction period. Mitigations developed through project-specific environmental assessments would ensure that construction occurs during periods when disturbances to visitors are anticipated to be minimal. The use of motorized vehicles in support of California Department of Fish and Game management activities, including the maintenance of new water developments, is governed by "Memorandum of Understanding between Bureau of Land Management and California Department of Fish and Game for Wildlife Management Activities in Wilderness" (1997).

Consistency with wilderness management objectives:

In accordance with BLM Manual 8560, *"Management of Designated Wilderness Areas,"* a wilderness management plan is developed for each BLM-administered wilderness area as a means of applying wilderness management policy to that specific area. The plan would be tailored to local conditions by prescribing specific objectives appropriate to the area. (Section 8560.21)

As management plans have not been developed for the subject wilderness areas, the general objectives described above under *"Preservation of wilderness character"* provide guidance for management actions. Relative to these objectives, the effects of developing new guzzlers for bighorn sheep in wilderness areas have been assessed.

Facilities necessary to accomplish the task:

In accordance with BLM Handbook H-8560-1, wildlife management activities will emphasize the protection of natural processes. Management activities will be guided by the principle of doing only the minimum necessary to manage the area as wilderness. Further, in managing wilderness use, *wilderness-dependent* use is to be favored.

Whereas 24 new water developments are proposed in wilderness areas under this alternative, 64 such developments are proposed for locations outside wilderness. To the extent that the water developments proposed in wilderness areas are the minimum necessary to realize the stated goal, these bighorn sheep guzzlers constitute "wilderness-dependent" use.

From Issue 4: Wild Horses and Burros

Combining the Chemehuevi and Havasu HAs and HMAs into one HA and HMA would integrate a substantially larger portion of the Whipple Mountains Wilderness into an area managed for retention of burros than under current management. Combining the historical burro range, Chocolate/Mule Mountains HA, and Cibola/Trigo HA into one HA and HMA for burros would integrate substantially larger portions of the Indian Pass, Picacho Peak, and Little Picacho Peak Wildernesses into an area managed for retention of burros than under current management. Most of the Palo Verde Mountains Wilderness occurs within the existing and proposed HMA. As wild horses and burros are considered an integral part of the natural system of the public lands in areas where found, impacts to the natural conditions of these wilderness areas are acceptable if herd numbers are managed in accordance with the established AML and approved management plans.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

The effects of establishing "washes closed zones" and applying "biological parameters" relative to accessing wilderness areas by motorized-vehicles are discussed under *Issues 2* and *3* (this section).

Parker 400 competitive recreation route:

Under this alternative, the *Parker 400* competitive recreation route would be deleted.

This action would result in no adverse impacts to wilderness resources, and could benefit such resources to the degree that potential straying from the approved course into designated wilderness would be averted.

Johnson Valley to Parker competitive recreation route:

The potential for adverse impacts to resource values in the Sheephole Valley Wilderness would be the same as those described for the No Action Alternative (see *Issue 5*, section 4.1.6).

Competitive off-highway vehicle events in accordance with MUC guidelines:

Permitting competitive off-highway vehicle events in accordance with MUC guidelines would result in the same effects as described for the No Action Alternative (see *Issue 5*, section 4.1.6).

From Issue 6: Land Ownership Pattern

The effects on wilderness resources of acquiring in-holdings would be the same as described for the No Action Alternative (see *Issue 6*, section 4.1.6).

CUMULATIVE IMPACTS

The incremental addition of permanent facilities in wilderness areas generally diminishes the overall quality of wilderness resource values as would substantial increases in visitation. However, the construction of 24 wildlife water developments distributed among several wilderness areas would not significantly add to the existing imprints of man's past activities such that the apparent naturalness of any one wilderness area would be affected. To the extent that the new water developments would ensure viability of bighorn sheep populations in wilderness, the wildlife values of wilderness would concomitantly be increased. Further, it cannot be reasonably expected that visitation to wilderness areas in the NECO Planning Area will substantially increase in the near future.

4.2.7 Livestock Grazing Management

From Issue 1: Standards and Guidelines

The effects of adopting regional standards for Public Land Health, and guidelines for grazing management are similar to the No Action Alternative.

From Issue 2: Recovery of the Desert Tortoise

Reducing the size of Lazy Daisy allotment by 7 percent will not result in lowering perennial AUMs because the area falls within ephemeral rangelands. However, under this alternative cattle utilization of perennial plants within desert tortoise habitats would be decreased from 40 percent to 25 percent. This is a substantial drop in grazing use and would result in a reduction of available perennial forage. Current terms and conditions would become a condition of the lease. A grazing strategy could directly affect year-long grazing operations an estimated four out of ten years. Grazing use would be substantially reduced during these dry years at lower elevations and in dense desert tortoise habitat. Implementation of this strategy could take two to three years with extensive coordination with the lessee.

The Chemehuevi Allotment would be canceled and potential cattle production would cease. The lessee would not be afforded the opportunity to relinquish grazing use.

According to this alternative, the lessee for Lazy Daisy Allotment may voluntarily relinquish grazing use and related authorizations. Their request would initiate a grazing decision from the manager to cancel the area of the allotment, all forage allocations, and all range improvement projects on BLM lands. The intent of this portion of the alternative is to devote habitat solely to the recovery of the desert tortoise.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
With the cancellation of the Ford Dry Lake Allotment potential sheep production would cease. Reduction of the Rice Valley Allotment would impact livestock use along the west and southwest edge of the allotment. This reduction may not be a serious impact to grazing management since sheep are herded and herds would be directed away from the area of exclusion.

CUMULATIVE IMPACTS
Perennial forage is reduced in the Lazy Daisy Allotment and the Chemehuevi Allotment is eliminated which represents a reduction of income and a potential loss of current lifestyle to the lessees. Cattle production would be foregone on these Public Lands and opportunities for future grazing use do not exist elsewhere in the Planning Area.

After cancellation of grazing use and related authorizations, most existing range improvements for both allotments, but primarily Lazy Daisy Allotment would soon fall into disrepair and have to be abandoned unless the BLM or a cooperator assumes the maintenance responsibilities. Abandoned projects could become a safety hazard and will need removed. This process is expected to be costly for the BLM.

With potential reductions of grazing in the NEMO Planning Area, the Mojave National Preserve and the NECO Planning Area, there would be a noticeably reduction in the size of the portion of the livestock industry centered on grazing use of BLM administered lands in the California Desert Conservation Area. Reduction of cattle operations at this level in these planning areas could change the character of livestock operation.

4.2.8 Wild Horses and Burro Management

From Issue 1: Standards and Guidelines
In the short term, management actions to protect or improve ecosystem health may impact wild burro management by requiring a reduction in wild horse or burro numbers. This would allow for recovery of vegetation and stabilization of soil, especially in riparian areas. Over the long term, these actions would reduce indirect impacts on wild horses and burros by improving the overall forage condition and water quality and quantity within Herd Management Areas. This would lead to healthier animals and habitat in the long term

From Issue 2: Recovery of the Desert Tortoise
Some of the reduction in size of the Chemehuevi and Chocolate/Mule Mountains HMAs (see Issue 4 below) is due to the designation of DWMAs and the management prescription to not have HMAs inside DWMAs. However, the areas where the HMA boundary has been reduced from DWMAs are not frequently used by burros and the impact of this action alone is not significant.

Elimination of the Chemehuevi grazing allotment would reduce the intermittent competition that occurs between cattle and burro grazing in that area, although the amount of competition is not significant.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
The size of the Chemehuevi HMA is 30% of original (i.e., in the No Action Alternative) and the new current management level is 72% of original. The size of the Chocolate/Mule Mountain HMA is 53% of original and the new current management level is 57% of original. The complexity of mixed agencies and mandates is discussed here. Removal of HMA designation from national wildlife refuges (NWRs) managed by USFWS and from Picacho State Recreation Area (SRA) and from other areas with species/habitat values (including tortoise) greatly enhances these entities to meet their management mandates and reduce impacts to valuable habitats and facilities. To some extent the scope of this enhancement also includes special status species in and along the Colorado River (and otherwise outside the NECO Planning Area). Based on abundance of forage and water, acre for acre, habitat on these excluded jurisdictions support the greatest amount of burros.

Allocation of natural waters on a fair share basis goes hand in hand with reductions above and should alleviate some of the burro/wildlife conflicts surrounding natural watering areas and relieve stress within burro herds of too many burros in a given area. Future fencing of some natural waters to exclude burros also furthers the goal and allocations described above. The distribution and fencing of allocated waters can help to achieve goals related to distribution of animals and forage use.

The reconfiguration of HMAs and allocation/fencing of waters inside will likely lead to episodes of water stress inside HMAs and an increase in nuisance burros off HMAs, especially in the NWRs and Picacho SRA during the hottest months of the year, no matter what the waters/forage situation is inside the HMA. However, a strategy and methods of burro removal (e.g., permanent water/feed traps on NWRs and the SRA), as well as fencing of some waters outside HMAs can significantly help mitigate this situation and.

Adding new (artificial) waters for bighorn sheep and rehabilitation of natural waters (which might result in more abundance of water) could help relieve water stress for all large animals at certain times.

Bighorn sheep ranges overlap most of the area of HMAs. Augmenting and reestablishing bighorn sheep demes will expand the attention given to coexistence of the two animals and could further future burro reductions.

From Issue 4: Wild Horses and Burros
HMA and animal numbers reductions are noted above. Elimination of the Picacho horse HMA would have no significance since any horses that may have once been in the area naturally left many years ago.

The reconfigured burro HMAs would create greater herd maintenance situation as burros will tend to move back into the former portions of HMAs, especially to NWRs and SRA during the hottest times of the year. Those area will continue to be impacted with some burro use. More frequent removals may be required to manage this situation, but could be handled cost-effectively, to some degree, with low-cost permanent traps. There is also the possibility that continuous herd drift and removal at traps could effectively and permanently draw herds down to well below AML not withstanding other measures described to manage the ecosystem as a whole. To some degree, and in spite of the absoluteness of mandates and goals, the NWRs and SRA may have to accept a certain amount of light, intermittent use.

Seasonal variations in temperature, precipitation and forage production will affect distances traveled by burros. In the periodic drift that will occur off HMAs during generally wet/lush times to remote upland areas no removal action is generally taken to remove these burros unless they do not retreat in a timely manner and tend to become established in the herd area.

Removal of nuisance burros in the Piute Mountain HA will help achieve the original CDCA Plan decision to not manage for burros in that area.

Developing a unitized Wild Horses and Burros program between California and Arizona BLM offices, and to some degree with other agencies and entities (e.g., NWRs, SRA, CDFG, and conservation groups) for general program administration and specific actions such as monitoring and removals, will help achieve efficiencies and plan decisions. This analysis does not go into the details of such unitized program administration and actions.

CUMULATIVE IMPACTS

Burro management areas and numbers are reduced due to a variety of factors: Public land Health Standards, other species and habitats management issues, and assertions of other agencies with exclusionary mandates. Overall, burro AMLs would lower to about two-thirds their present levels and further reduces an already reduced scope of burros management in the region. In spite of proposed new management facilities, however, there is some question about the cost and feasibility of achieving and maintaining the proposed management situation given the vagaries of nature and intent to not manage for burros on lands which are the most desirable to burros in the hot months of the year. A unitized approach to managing the program among all the stakeholders, especially BLM offices in California and Arizona, will greatly improve the chance of success.

4.2.9 Recreation Management

From Issue 1: Standards and Guidelines

Managing ecosystem health in accordance with Regional Standards and managing grazing activities in accordance with the specified regional guidelines would result in the same effects as discussed for the No Action Alternative relative to National Fallback Standards except benefits and effects would apply across the Planning Area.

From Issue 2: Recovery of the Desert Tortoise

The network of routes available for casual use as proposed under this alternative—which, in part, is based on actions to recover the desert tortoise including the establishment of "washes closed zones" in DWMAs would provide *reasonable* access for both motorized and non-motorized recreational activities. Except for wilderness areas wherein casual motorized-vehicle use is prohibited, recreationists would be able to drive their vehicles within reasonable proximity to most public lands within the NECO Planning Area. Opportunities for recreation, therefore, would not be appreciably affected consequent to route designations.

Contentions that the establishment of "washes closed zones" significantly affect hunting opportunities cannot be supported. Certainly, access to historic hunting areas would be reduced upon closure of routes traditionally used for access, but can it be stated that opportunities for hunting would be concomitantly reduced? At issue is whether hunting can be pursued absent "open" motorized access to *all* reaches of the hunting area(s). If the approved route network provides reasonable access to substantial portions of the areas open to hunting, then such route designations would not be deemed as significantly affecting opportunities for hunting. The designation of additional routes or wash zones as "open" would not effectively increase opportunities for hunting, rather it would simply make the opportunities for hunting easier to realize. In fact, motorized access to all parts of areas open to hunting could detract from the experiences of those hunters desiring to walk moderate distances as part of their hunting activity. If vehicles impinge on these individuals' solitude and, perhaps, frighten game, their experiences may be diminished in quality.

The same argument can be made relative to other non-motorized recreational pursuits that rely on motorized vehicles for access. The use of vehicles is often necessary to transport hikers or equestrians to trailheads, but once engaged in their non-motorized recreational pursuits, the close proximity of off-highway vehicles generally diminishes the quality of back country experiences. Given the extent of areas closed to motorized vehicles (e.g., wilderness areas) along with the proposed network of available routes under this alternative, which includes "existing" routes and those designated "open" and "limited," opportunities for high-quality motorized *and* non-motorized recreational experiences would be maintained.

Under current management, stopping, parking, and vehicle camping is allowed within 300 feet of routes, except within sensitive areas such as ACECs where the 1980 CDCA Plan limit of 100 feet applies. Limiting such activities in DWMAs consistent with the limitations for sensitive areas under the No Action Alternative—except the 100-foot limitation would be measured from a route's centerline instead of its edge—would result in the same effects as discussed for the No Action Alternative (see *Issue 2*, section 4.1.9). The lands no longer available for stopping, parking, and vehicle camping through modification of the "100-foot rule" as indicated would be insubstantial.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities

Closure of a route under this alternative is strongly considered depending on a route's proximity to certain species and/or their nesting/hibernation locations, proximity to natural or artificial water sources, and whether the route is redundant. Application of these criteria to conserve special status species and natural communities would result in minor impacts to vehicular access and, therefore, to recreation. Localized restrictions to vehicular access would occur, but the network of routes available for casual motorized use would continue to provide reasonable access. Few areas outside wilderness would be inaccessible by vehicles, that is, access to virtually all parts of the Planning Area would be afforded within reasonable proximity.

However, this does not mean that changes to the manner in which certain activities are pursued would not be required. For instance, vehicular access for hunting in the Chuckwalla Bench is currently allowed in all navigable washes. Under this alternative such "unlimited" access would no longer be permitted. Instead, motorized-vehicle access in the Chuckwalla DWMA would be limited to approved routes of travel, including specific washes and navigable washes in "washes open zones" only. Although the motorized component of the hunting experience would be somewhat limited, the hunting experience itself would be little constrained. Hunters able to walk short to moderate distances could still pursue this activity throughout virtually the same area as previously hunted. Those less able to walk would be further constrained concomitant with the limitation of access, but ample opportunity would still exist for this recreational endeavor. Under this alternative, the area designations of Ford Dry Lake and Rice Valley Dunes would be changed to preclude vehicular "free-play." In other words, these areas would no longer be designated Off-Highway Vehicle Recreation Areas. It may have been anticipated upon their designation through the CDCA Plan that use would occur at levels above which anecdotal evidence suggests currently occur. Relatively low use of these areas for off-highway vehicle free-play is perhaps a function of remoteness from populated areas, or in the case of Ford Dry Lake, the lack of its physical attractiveness and available opportunities for a challenging experience. Therefore, limiting vehicular use in these areas to approved routes would affect relatively few OHV enthusiasts. Free-play in these areas is a less important recreational endeavor than vehicular touring on a network of routes.

From Issue 4: Wild Horses and Burros

Actions proposed under this alternative are not anticipated to affect opportunities for recreation.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

Managing motorized-vehicle access in accordance with MUC guidelines established in the CDCA Plan, as amended, would affect opportunities for recreation in the same manner as described under *Issues 2* and *3* (this section).

Elimination of the *Parker 400* corridor would result in no adverse impacts to recreational opportunities. It has been a decade since the *Parker 400* event last occurred in California; interest in reestablishing the event on the California loop is no longer being expressed. The *Parker 400* event now occurs entirely in Arizona but has not been run over the last few years.

Conditions imposed on competitive vehicle events in the *Johnson Valley to Parker* corridor as proposed under this alternative would not substantially constrain such events. For events outside the *Johnson Valley to Parker* corridor, applications would no longer be considered on other alignments through MUC guidelines.

Modification of the "300-foot rule" for stopping, parking, and vehicle camping outside DWMAs such that the 300-foot distance is measured from a route's centerline instead of its edge would not substantially affect opportunities for these activities and would reduce confusion about the point of application of the rule.

From Issue 6: Land Ownership Pattern

Actions proposed under this alternative are not anticipated to affect opportunities for recreation (see discussion for the No Action Alternative: *Issue 6*, section 4.1.9).

CUMULATIVE IMPACTS

Increased restrictions on motorized-vehicle access—the closure of additional routes and the establishment of "washes closed zones" in DWMAs—cumulatively affect opportunities for motorized recreation in an adverse manner. The number of routes on which one may drive for pleasure, or enjoy "touring" activities, would decrease under this alternative. There is a concomitant decrease in opportunities for vehicle camping in conjunction with increasing limitations on access. Such restrictions are consistent with an apparent trend over the last several decades to limit motorized recreation in ways that would minimize the potential for damage to natural and cultural resource values.

Conversely, opportunities to escape the sights and sounds of the mechanized world would be increased under this alternative. The limitations on motorized-vehicle travel are not such that access to sites for non-motorized activities would be substantially affected. The availability of additional opportunities for these activities is consistent with an apparent trend in recent years to favor non-motorized recreation recognizing that such activities generally have less potential for damaging resource values than motorized activities. However, it is not anticipated that opportunities for non-motorized recreation will not continue to increase in the reasonably foreseeable future.

4.2.10 Motor Vehicle Access

From Issue 1: Standards and Guidelines
The effects on motorized-vehicle access consequent to managing ecosystem health in accordance with Regional Standards are the same as described for No Action Alternative relative to National Fallback Standards and except benefits and effects would apply across the Planning Area.

Under this alternative, management actions to maintain healthy, productive, and diverse populations of native species are proposed in association with *Issues 2* and *3*. Impacts to motorized-vehicle access consequent to adoption of those actions are discussed under these issues (this section).

From Issue 2: Recovery of the Desert Tortoise
Actions proposed under this alternative to recover the desert tortoise—including the establishment of "washes closed zones"—would affect casual motorized-vehicle access as described under *Issue 2*, section 4.2.9 (Recreation Management). Access for *other* than casual purposes (access related to activities which require specific authorizations) would be addressed through the applicable permitting process and involves specific route(s) for specific proposal(s). The authorized use of a "closed" route usually limits this use in some manner (e.g., number of trips, season of use, speed limits, accompaniment by a wildlife biologist, etc.) and/or requires mitigation in some form (e.g., restoration of impacts, payment of mitigation fees, etc.). Route designations, which are applicable principally to casual use, would have little to no effect on access for non-casual purposes.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Actions proposed under this alternative to conserve special status species and natural communities—application of special "biological parameters" relative to designating routes of travel as "closed"—would affect casual motorized-vehicle access as described under *Issue 3*, section 4.2.9 (Recreation Management). The effects of route closures on non-casual activities would be the same as described under *Issue 2* (this section).

From Issue 4: Wild Horses and Burros
Actions proposed under this alternative are not anticipated to affect motorized-vehicle access.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Managing motorized-vehicle access in accordance with MUC guidelines established in the CDCA Plan, as amended, would limit access to the same degree as described under *Issues 2* and *3* (this section). In accordance with the criteria at 43 CFR 8342.1, routes would be available for use

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where harassment of wildlife or significant disruption of wildlife habitats are minimized with special attention afforded to listed or sensitive species. Where such impacts to wildlife and their habitats are not anticipated, routes in MUC "L," including navigable washes, would be designated "open"; "existing" routes in MUC "M" areas and MUC "I" areas not designated "open" to motorized-vehicle access would also be available for use. Limitations on motorized vehicle access for both casual and authorized use consequent to route designations under this alternative would not substantially affect such access.

Manageability:

As to whether the limitations on access under this alternative would be perceived as fair and reasonable by the general public is undetermined. Compliance with the rules, to some degree, is related to these perceptions, as well as beliefs as to the effectiveness of access limitations in achieving the stated goals of the NECO Plan. If the public views the access limitations as unfair and unreasonable, and believes such limitations will not substantially benefit species and their habitats, compliance could be problematic. Contributing to the public's possible unwillingness to accept less than well-substantiated rationale for access limitations is the NECO Plan's occurrence on the tails of the California Desert Protection Act of 1994 which prohibited casual motorized-vehicle access on at least 669 miles of routes now in designated wilderness areas.

Although motorized-vehicle access would be more constrained under this alternative than the No Action Alternative due to the establishment of "washes closed zones" in DWMAs and application of "biological parameters" throughout the NECO Planning Area, it is anticipated that successful management of vehicular activities would be achieved. (The discussion under *"Manageability," Issue 5*, section 4.1.10, is relevant to this alternative.)

From Issue 6: Land Ownership Pattern

Under this alternative, impacts to motorized-vehicle access would be the same as discussed for the No Action Alternative (see *Issue 6*, section 4.1.10).

CUMULATIVE IMPACTS

Motorized-vehicle access and opportunities for recreation are closely linked in the California desert. The cumulative effects on motorized-vehicle access under this alternative, therefore, are the same as described in the section entitled "Recreation Management" for the Preferred/Large DWMA Alternative.

4.2.11 Mineral Management

The following affects are additional or change to affects described in the No Action Alternative. No attempt is made to quantify the number people, companies or operations affected by the following.

From Issue 1: Standards and Guidelines

Minerals operations could be subject to some additional mitigation and reclamation requirements that might result in slight to modest increases in the cost of operation and shutdown phases.

From Issue 2: Recovery of the Desert Tortoise

The compensation requirement would be simplified to one formula but would increase for small operations that would have had been guided by less than 5:1 ratio and possibly reduce for the few very large operations that would have met a 6:1 ratio requirement. In areas where MUC M changes to MUC L casual use would be subject to more costly and time consuming plans of operations and NEPA review. Nearly all operations would benefit from the authorization streamlining of the 100 acres programmatic plan consultation with the U.S. Fish and Wildlife Service. Mineralized lands currently included in areas no longer covered by critical habitat, especially part of the Chocolate Mountains - Picacho gold belt, would not be subject to DWMA/Critical Habitat management prescriptions, but would still be subject to standard tortoise mitigation. Requiring a performance bond and performance standards for reclamation would increase the cost for all surface-disturbing operations regardless of size. From an analysis of the reasonably foreseeable future it is anticipated that no operations would be restricted due to the 1% surface disturbance limitation.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities

Minerals operations in WHMAs could be subject to a variety of small scale surveys, mitigation, compensation, and reclamation requirements that could result in a slight increase in the cost of operation and shutdown of operations. The nature and degree of requirements would vary with the nature of habitats and species and time of year. Access and valid existing rights would not change and mining restrictions would not be added. This includes mining opportunities in the Eagle Mountain area where MUC I would change to MUC L/M, and salt extraction mining on Bristol, Cadiz, and Danby playas which would be included in the system of WHMAs.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation

There would be a slight additional loss of access from closing non-routes which could affect casual mining activity. Authorized use of closed routes would be considered for authorized mining activities which would affect such activities to the extent of time and costs of gaining necessary authorization.

From Issue 6: Land Ownership Pattern

Consolidations of land ownership could be a beneficial in that access and operations involving single, uncomplicated ownership patterns could simplify legal aspects of mining rights as long as surface and mineral estates were not split. Acquired lands in areas not already withdrawn from mineral entry would be open to mineral entry. Public lands which would be disposed to private ownership could be developed for mineral values depending upon the disposition of the new land owner.

CUMULATIVE IMPACTS

Proposed designations and management prescriptions for species and habitats would continue the trend of ecological impacts reducing measures, but these amount only to small additional costs requirements to conducting the search for and development of minerals which opportunity is otherwise not affected. While access to minerals has considerably diminished over several years due to a variety of designations, a more sophisticated approach to ecosystem management, which this plan proposes, should obviate the need for further species listings which are much more industry devastating. Since this plan is both strategic, programmatic, and multi-agency cooperative in nature, permit processing and NEPA document writing time should be greatly reduced.

4.2.12 Cultural Management

From Issue 1: Standards and Guidelines
Same as the No-Action Alternative except that under that Regional Standards for Public Land Health are applied and the described benefits would extend throughout the planning area.

From Issue 2: Recovery of the Desert Tortoise
The Preferred/Large DWMA will designate the Chemehuevi and Chuckwalla DWMAs, encompassing approximately 1,703,159 acres, for the protection of desert tortoise and significant natural resources. All MUC Class "M" lands within the DWMAs will be designated as MUC Class "L". Cumulative new surface disturbance on Federal and State administered lands will be limited to 1 percent of the Federal/State proportion of the DWMA. These actions should result in greater protection and preservation of cultural resources within the DWMA boundaries.

The establishment of DWMAs is an administrative action that has no direct, immediate, or measurable on-the-ground effect on cultural resources. Management prescriptions authorized within DWMAs, such as installation of tortoise fencing and crossings, acquisition and disposal of lands, wildfire suppression, and installation of wildlife guzzlers, may qualify as an undertaking and are subject to review under Section 106 of the NHPA. Activities, such as constructing right-of-way and tortoise fencing along major highways might affect cultural resources. These actions will be reviewed in accordance with Section 106 during the course of normal NEPA review for a proposed action. This reflects no change from current management policy for cultural resources.

Grazing Management
Current range management practices will continue. Effects are the same as described for the No-Action alternative.

Approximately 21,606 acres of the Lazy Daisy cattle allotment will be eliminated. This will have a positive benefit for cultural resources by reducing the threats from grazing to any recorded sites. Currently there are 45 recorded resources within the existing allotment boundaries (see Table 4-9). These sites will remain within the reduced allotment boundaries in this alternative.

The Chemehuevi Grazing Allotment will eliminated. This will have a positive benefit to cultural resources by removing 137,321 acres from grazing threats to all cultural resources. Currently, there are 55 known sites recorded within the boundaries of the Chemehuevi Grazing Allotment.

Management policy will continue to be to analyze effects to cultural resources from grazing during the NEPA review of rangeland lease renewals and would continue in the No-Action alternative. New range improvements will continue to be reviewed under Section 106 at the time they are proposed.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
In the Preferred alternative, MUC Class designations in the Eagle Mountains area will be changed from I to L in the proposed Bighorn Sheep WHMA. Fencing is programmatically proposed around hazards to bighorn sheep. The Ford Dry Lake domestic sheep allotment is eliminated. The Rice Valley domestic sheep allotment boundaries will be reduced by 9,264 acres. Both allotments currently encompass 135,247 acres of land. Seven sites are recorded within the Rice Valley allotment and 53 sites are recorded in the Ford Dry Lake allotment (Table 4-9). Elimination of

the Ford Dry Lake allotment will remove 49,682 acres from grazing and will eliminate the threat from grazing to the 53 known sites within the allotment. The seven known sites will still remain within the boundaries of the Rice Valley allotment. The elimination or reduction in size of these allotment will have a positive benefit to the protection and preservation of cultural resources that have yet to be recorded.

There are 137 new water development (guzzler) locations identified in this alternative. In Small DWMA B only 24 guzzlers are proposed with no locations specified. Of these locations, nineteen are located within .25 miles of a known cultural resource. Proposals for new water developments would continue to be reviewed on a case-by case basis as part of the environmental assessment. These actions will be reviewed in accordance with Section 106 during the course of normal NEPA review.

From Issue 4: Wild Horses and Burros

Analysis is the same as the No-Action alternative. Under the Preferred Alternative, Herd Areas are eliminated, existing Herd Management Areas are combined and reduced in size to 371,172 acres. Herd populations will managed at existing levels. There are no specific on-the-ground actions proposed in this plan for this alternative. Specific actions that are carried out to meet the standards may satisfy the definition of an "undertaking", such as placement of protective exclosures, water troughs, gathering traps, or other ground disturbing activities, and may have the potential to affect historic properties. Those actions will be reviewed in accordance with Section 106 of the NHPA during the course of normal NEPA review at the time they are proposed.

The Preferred alternative would remove 559,734 acres from management for Wild Horse and Burro herds. This would result in a positive benefit to cultural resources by reducing the number of known sites subject to impact from herd behavior by 417 sites. There are 399 recorded cultural resources identified within the boundaries of the HMAs for this alternative. (Table 4-10)

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations

General analysis is the same as the No-Action alternative (see Table 4-11), except that the size of the APE changes. In the Preferred Alternative, routes outside DWMAs allow casual use activities within 300' of a route (600' APE). Inside DWMAs, activities are limited to within 100' of a route (200' APE).

Under the Preferred Alternative, 444 cultural resources have been identified as located on BLM managed lands and falling within the 600' APE for routes that are under review for "open"designation outside DWMAs (Table 4-11). Sixty-eight sites are located within DWMAs. Of these, 153 sites have either been listed, determined eligible, or are considered likely to be eligible and 131 of these sites are considered to have qualities and values that might be adversely affected by activities authorized within the APE of a route. In this alternative, 119 route segments have been identified has having potential conflicts with cultural resources. These segments will not be designated either "open" or "closed" pending a physical assessment of the sites and evaluation of threat that proximity to an open route might pose. If it is determined that these routes may have or have had an adverse effect on historic properties, BLM will close these routes or will consult with SHPO on the appropriate course of action to resolve the effect.

Competitive Off-Highway Vehicle Events

Analysis remains the same as the No-Action alternative. Under the Preferred Alternative, the

Parker 400 competitive recreation route would be eliminated, reducing the linear miles of competitive recreation routes from 63 to 32 miles. At present, there are no recorded archaeological and historic sites located within 300 feet of the race corridor. The Johnson Valley to Parker Route would be remain available for competitive recreation events. Event specific EAs are required for competitive off-road vehicle events. Race events will be reviewed on a case-by case basis. Under this alternative, BLM would continue to review all projects for effects to cultural resources on a case-by-case basis as part of NEPA review at the time they are proposed

From Issue 6: Land Ownership Pattern
Same as No-Action Alternative.

From Issue 7: Access to Resources for Economic and Social Needs
Same as No-Action Alternative.

From Issue 8: Incorporation of Wilderness Areas into CDCA Plan
Same as No-Action Alternative.

CUMULATIVE IMPACTS
In the Preferred alternative, there would be a net indirect benefit to the protection, preservation, and management of cultural resources from the adoption of Regional Standards and Guidelines for rangeland health. There will be a direct benefit to cultural resources by removing the Chemehuevi Range Allotment and portions of the Lazy Daisy from grazing. And reducing the size of Herd Management Areas. There will be further benefit in changing MUC classifications from M to L, as well as limiting cumulative surface disturbance within DWMAs to one percent. Reduction of the authorized use area along routes in DWMAs to 100', will directly benefit cultural resources by reducing threats from off-highway vehicle, camping, and parking along those routes. There will also be a direct benefit to cultural resources by reducing the length and scale of competitive race corridors.

4.2.13 Lands and Land Use Authorization

The following affects are additional or change to affects described in the No Action Alternative. No attempt is made to quantify the number people, companies or actions affected by the following.

From Issue 1: Standards and Guidelines
Lands actions could be subject to some additional mitigation and reclamation requirements that might result in slight increases in the cost of operation and shutdown phases.

From Issue 2: Recovery of the Desert Tortoise
Compensation requirement would be simplified to one formula, but would increase for small actions that would have had been guided by less than 5:1 ratio and possibly reduce for the few very large operations that would have met a 6:1 ratio requirement. In areas where MUC M changes to MUC L there would be little difference in management given that the areas of change are currently in critical habitat. Given that this alternative provides strategic management approach and programmatic consultation for the desert tortoise, nearly all lands actions would benefit from processing and authorization streamlining. There is a good chance that this alternative reduces or eliminates additional species listing which in turn would stabilize costs and processing issues.

Some lands currently in critical habitat would be excluded from DWMA, but would still be subject to standard tortoise mitigation. Requiring a performance bond and performance standards for reclamation would increase the cost for all lands actions on public lands. From an analysis of the reasonably foreseeable future it is anticipated that few if any proposed lands actions would be restricted due to the 1% surface disturbance limitation; however, in light of unknown demand and the long-term implication of this limitation, it is possible that some proposals for which decisions are discretionary could be denied or relocated to a location outside DWMA. The proposed limited closures would have little effect as demand for such lands applications is very low or does not exist.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Lands actions proposals in WHMAs could be subject to a variety of small scale surveys, mitigation, compensation, and reclamation requirements that could result in a slight increase in the cost of operation and shutdown of operations. The nature and degree of requirements would vary with the nature of habitats and species and time of year. Given that this alternative provides strategic multi-species management and is coordinated among several management and regulatory agencies, nearly all lands actions would benefit from processing and authorization streamlining. There is a good chance that this alternative reduces or eliminates additional species listing which in turn would stabilize costs and processing issues.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation
There would be not additional impacts here from the No Action Alternative.

From Issue 6: Land Ownership Pattern
Consolidations of land ownership is greater than in the No Action Alternative and could be even more beneficial to land actions where there are single, uncomplicated ownership patterns.

CUMULATIVE IMPACTS
This alternative continues but stabilizes the trend of operational costs dues to species and habitats conservation needs. While costs may rise somewhat, authorization processing should accelerate.

4.2.14 Socio-economic

From Issue 1: Standards and Guidelines
Impacts would be similar to the No Action Alternative for grazing allotments. Implementation of regional standards may increase costs associated with continued use of the lease.

Impacts to the public and surrounding communities are indirect and are generally minor, both locally and regionally. In the long-term, public lands, which meet standards, are a benefit, both for local communities and for regional tourism.

From Issue 2: Recovery of the Desert Tortoise
Potential socio-economic impacts to the four grazing operations are as follows:

Cancellation of the Chemehuevi Allotment, loss of the northeast portion Lazy Daisy Allotment, and cancellation of ephemeral grazing use would directly impact livestock production on 158,927 acres. Cancellation of Chemehuevi Allotment would preclude potential production of livestock.

The reduction of acreage in the Lazy Daisy Allotment would not significantly affect grazing operations due to ephemeral production of this area. However, utilization has been reduced from 40 percent to 25 percent in the DWMA. This is a substantial drop in use inside the DWMA, an estimated 37 percent reduction of perennial forage is expected. This 22 percent reduction would leave 2,483 AUMs or 207 cattle all year long. This is a significant and adverse consequence to the lessee. A grazing strategy to mitigate cattle impacts to tortoise and their habitats could directly affect year-long grazing operations an estimated four out of every ten years. Grazing use would be substantially reduced during the dry years, similar to current grazing practices. Implementation of this strategy could take two to three years with extensive coordination with the lessee.

The potential voluntary relinquishment by the lessee of all grazing use in Lazy Daisy Allotment has no effect until activated. After the lessee requests relinquishment, cattle production would cease on 470,207 acres in the Planning Area.

Construction of range improvements according to this alternative would be costly, although impacts are not as great as other alternatives. The proposed range improvements on the Lazy Daisy Allotment include 18 miles of fence, three cattleguards, four water sites, six water facilities with four miles of pipe, and three corrals. The total cost for all of the improvements under this alternative would be $196,010. It is anticipated that critical improvements would be completed during short-term, and depending upon the timing and funding sources, development for most improvements could take more than ten years. All existing cattleguards would be modified to prevent entrapment of desert tortoises. New cattleguards will be designed to prevent entrapment of desert tortoises.

Requiring compensation at a 5:1 ratio inside DWMA boundaries could cause an impact to certain permitted uses such as mining, communication site construction and utility construction by increasing the amount of compensation required.

No significant socio-economic impacts are anticipated for current mining operations. There are no proposed changes expected in employment and income in the mining sectors economy. Any changes to mining operations that will have socio-economic impact are not known. Other issues that may increase operating costs or cause changes to life style patterns are also unknown at this time.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Potential socio-economic impacts to the sheep grazing and mining operations are as follows:

Deleting Ford Dry Lake Allotment would have a negative impact on the grazing operator by eliminating the economic benefit from potential sheep production. The economic impact would be minimal because the allotment is rarely grazed. The Ford Dry Lake Allotment has been grazed twice since 1979. Deleting portions of the Rice Valley Allotment would minimally affect potential sheep production. Administration of the area excluded may affect the lessee with incurred costs to stay east of the line.

Expenses incurred by mining operators due to protecting the bat populations that my roost in adits and shafts has yet to be determined. Other issues that may increase operating costs or cause changes to life style patterns are also unknown at this time.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

Potential socio-economic impacts to recreation operations are as follows:

Restricting stopping, parking and camping to 100 feet will have little impact on the public's access to the Planning Area. No estimation of recreation visitor day numbers are available, therefore the potential socio-economic impacts associated with vehicle camping in these areas is unknown at this time.

Closure of Ford Dry Lake and Rice Valley open areas would have a minor effect on recreation as very little use has ever been made of these two areas. Closing the parker 400 and retaining the Johnson Valley - parker competitive race routes are commensurate with diminishing interest in point to point race events.

Designating routes as "open", "closed" or "limited" will not significantly affect traffic patterns. Less than 5% of inventoried routes are proposed for closure and wash-closed zones will have little to no significant soci-economic affect on the human component.

Closure of Ford Dry Lake and Rice Valley Open Areas would have a minor social effect, as very little use has been made of these two areas.

From Issue 6: Land Ownership Pattern

Potential socio-economic impacts to recreation operations are as follows:

In looking at this alternative, there are two categories of land ownership that will potentially have socio-economic impacts. These land adjustments categories relate to public lands that will be in protected zones and private lands that the Federal government would like to exchange or purchase. The least complicated adjustments that would be made between the Agency and the owners are the single owner per section proprietorship, and the 2-5 owners per section proprietorship. Table 4-19 shows changes in the acres of land identified by public and private classifications. These totals reflect the "realistic" change within the management areas. Social well-being concerns that may impact private owners' decision-making related to the proposed adjustments and their willingness to participate in increasing public land ownership are unknown at this time.

Working with the fewest number of owners will significantly reduce the cost to the Agency and create less disruption to the owners in the more densely owned parcels. The land available for adjustment in the eastern section of the Planning Area, closest to the cities of Needles and Blythe, may have the most appeal to some of the private land owners since there are areas of higher population and have the greatest potential for generating revenue from tourism activities. Other public lands outside of the Planning Area may need to be considered for exchange in order to accomplish public land consolidation objectives . These exchanges outside the Planning Area may increase social and economic well-being, and thus, have appeal to other private land owners. Accomplishing acquisition through exchanges is the preferred method, however it is impossible to predict what methods may prevail.

Table 4-19. Proposed Changes to Public and Private Acres in Conservation Zone

County	Preferred/Large DWMA and Small DWMA A Alternatives	
	Private*	Federal**
San Bernardino	75,009	1,676,556
Riverside	112,865	1,580,280
Imperial	71,833	532,271

*Combined totals of acres of privately owned lands in and 2-5 density classes. These would be included in Federal acquisition programs through purchase or exchange.
**Total Federal Lands in Proposed Conservation Zones.

CUMULATIVE IMPACTS

Overall there would be only minor socio-economic impacts in this alternative because 1) uses and use levels in the planning area are low, and 2) on both an area and restrictive basis proposed changes that affect uses are relatively small. Grazing leases proposed for elimination are seldom used, the OHV open areas are seldom used, and most of the roads to be closed show evidence of disuse or are redundant in nature. Just how difficult it will be to design and implement a grazing strategy for the Lazy Daisy allotment remains to be seen. The increased cost of land use permits and proactive agency conservation efforts would be off-set by reduced processing time - i.e., streamlining - and a more simplified pattern of land ownership. The opportunity to relinquish a grazing lease and simplify the land ownership pattern involves willing sellers and fair market compensation. Except for the limitation on surface disturbance in DWMAs the conservation emphasis in this plan is not on restrictions but proposes cost of doing business (mitigation, compensation, rehabilitation of disturbance, proactive habitat work) commensurate with species and habitat values. One public cost, highway fencing for tortoise in DWMAs, is very high, as well as potential tax base loss for counties. If all the measures work over time, then little to no additional restrictions would be required in the future from species and habitat listings/issues.

4.3 Small DWMA A Alternative

4.3.1 Air Quality

From Issue 1: Standards and Guidelines

This alternative is similar to the Preferred Alternative.

From Issue 2: Recovery of the Desert Tortoise

The designation of approximately 1,384,310 acres of Federal land as ACECs would have a slight positive effect on air quality through implementation of specific management prescriptions designed to reduce surface disturbance. The Chemehuevi DWMA (ACEC) reduces the amount of grazing by 277,678 acres and designates routes as open, closed or limited. The reduction in surface disturbance is 46% more than the Preferred/Large DWMA Alternative and there would be a positive benefit to air quality from reduction of PM_{10} emissions in the Lazy Daisy allotment.

Wildfire suppression efforts would result in reduced particulate (PM_{10}) production and visibility impairment from smoke and wild-blown dust. Short term impacts from suppression potential increase levels of particulate pollution from surface disturbance of fire fighting equipment and operations. However, successful suppression efforts minimize the number of acres impacted as a result of vegetative cover loss.

__From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation__
Air quality would be enhanced by limiting future off-road vehicle activity to existing roads and trails . Competitive off-road vehicle activities are deleted from the Planning Area which will eliminate the airborne particulate matter (PM_{10}) produced from events. Dust generated from the off-road vehicle activities at the newly designated Chemehuevi Open Area is not expected to significantly impact the area because it is located at the downwind planning boundary.

__CUMULATIVE IMPACTS__
Impacts are similar to those discussed under the No Action Alternative.

4.3.2 Water Quality

__From Issue 1: Standards and Guidelines__
This alternative is the same as the Preferred Alternative.

__From Issue 2: Recovery of the Desert Tortoise__
The designation of approximately 1,384,310 acres of Federal land as ACECs would have a slight positive effect on water quality through implementation of specific management prescriptions designed to reduce improve water quality and surface disturbance. The elimination of livestock grazing in DWMAs would improve vegetative condition and consequently result in better protective ground cover and soil-holding capability. Erosion and soil loss would be reduced and water quality improved as a result of better dissipation of energy this is associated with storm water runoff.

Reduced grazing on 277,678 acres would result in potential improvement in water quality at spring sources through removal of coliform bacteria contamination. The reduction in grazing is 60% more than the Preferred/Large DWMA Alternative.

__From Issue 3: Management of Special Status Animals and Plants and Natural communities__
Same as the Preferred/Large DWMA Alternative.

__CUMULATIVE IMPACTS__
Impacts are similar to those discussed under the No Action Alternative.

4.3.3 Soil Quality

__From Issue 1: Standards and Guidelines__
This alternative is the same as the Preferred Alternative.

__From Issue 2: Recovery of the Desert Tortoise__
Impacts to soil quality through implementation of the Small DWMA A Alternative are similar to the Preferred/Large DWMA Alternative with the following exception:
DWMA size is 18% smaller than the Preferred/Large DWMA Alternative which will reduce the

amount of area managed for improvement of species and habitat. It is unlikely, however that the reduced area will result in a measurable increase in soil erosion or decrease soil quality. Reducing grazing by 58% will positively impact soil quality through preservation of vegetative cover and resultant decrease in erosion and soil loss. Additionally, soil compaction which channels and concentrates storm water runoff would be reduced. Although the actual acreage of disturbance is unknown, since cattle don't graze every part of the allotment, it is expected that the potential improvement to soil quality would be significant in highly disturbed areas. Installation of additional improvements would slightly increase soil disturbing impacts.

CUMULATIVE IMPACTS

Impacts are similar to those discussed under the No Action Alternative.

4.3.4 Vegetation Management

From Issue 1: Standards and Guidelines

This alternative is the same as the Preferred Alternative.

From Issue 2: Recovery of the Desert Tortoise

The effects on natural communities, ecosystem processes, and special status plants in this Alternative are similar in nature to the impacts described for the No Action Alternative, but are reduced somewhat based mostly on the establishment of DWMAs where some uses are restricted. Specific differences in impacts between the No Action Alternative and the Tortoise Recovery are described below.

Natural Communities

Table 4-20 shows the acres and percent of total of each natural community within the 1,384,310 acre DWMA. Although the level of conservation management is less, the DWMAs can be viewed as augmenting the portions of each natural community that are in JTNP, CMAGR, and BLM wilderness (Table 4-1).

Table 4-20. Acres and percent of total of each natural community within small DWMAs.

Natural Community	DWMAs
Sonoran Desert Scrub	1,053,756 (28)
Mojave Desert Scrub	135,751 (17)
Desert Dry Wash Woodland	192,352 (28)
Mojave Pinyon/Juniper Woodland	
Desert Chenopod Scrub	
Playas	1,142 (1)
Springs and Seeps (no. of sites)	33 (24)
Sand Dunes	

The fencing of extensive portions of major highways, roads, and railroads would protect the animal component of the bisected natural communities. This is addressed more fully as it affects ecosystem processes.

Changes in fire management policies, though not great, will provide some additional protection of natural communities. This will also aid in the defense against the spread of alien weeds.

Comparing the No Action Alternative and the Small DWMA A Alternative (Table 4-21)cattle grazing is reduced significantly in Sonoran Desert Scrub (from 247,420 ac. to 61,490 ac.) and somewhat in Mojave Desert Scrub (from 207,450 ac. to 163,197 ac.) based on reductions in the two cattle allotments to benefit desert tortoise. The impacts of grazing on natural communities as described in the No Action Alternative would be reduced accordingly.

Table 4-21. Acres and percent of total of each natural community within BLM grazing allotments

Natural Community	Lazy Daisy Cattle	Chemehuevi Cattle
Sonoran Desert Scrub	25,871 (1)	35,619 (1)
Mojave Desert Scrub	163,197 (20)	
Desert Dry Wash Woodland	1,493 (<1)	
Mojave Pinyon/Juniper Woodland	1,928 (100)	
Desert Chenopod Scrub		
Playas		
Springs and Seeps (no. of sites)	15 (11)	
Sand Dunes		
All NECO lands	192,529 (4)	36,077 (<1)

The net effects of the restriction on camping to designated sites is difficult to assess. Whereas light impacts scattered along existing routes would be reduced, vehicle associated impacts at the designated campsites would increase in size.

Natural communities would benefit from improved coordination among agencies and monitoring of the health of these communities. Monitoring is to be developed through the Desert Managers Group and coordinated by a desert-wide coordinator. The amount and nature of this monitoring is to be determined in the future. Monitoring in these community types outside of the NECO Planning Area may be equally beneficial.

Special Status Plants

Most impacts on special status plants can be expected to occur on BLM non-wilderness lands and private lands. As in the No Action Alternative, avoidance of special status plants in project construction will be the most effective measure. However, some special status plats are not observable in some seasons or in some years. Restrictions on uses within the DWMAs will reduce impacts to the habitat of these species even where not observable or in suitable habitat where not currently growing.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
The impacts described for the Preferred/Large DWMA Alternative generally apply except that the amount of DWMA is lower and the amount of WHMA is higher. (In Table N-12 Appendix N the total Conservation Zone figures are the same.)

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Benefits and impacts related to LTVAs is the same as for the No Action Alternative.

All existing competitive routes and opportunities to design new ones is eliminated in this alternative thus eliminating all real and potential impacts from such activity as described in previous alternatives.

Impacts from the pattern of road designations would be about the same as for the Preferred Action except with fewer "open" roads in DWMAs. Impacts to plant communities and special status plant species would be reduced.

CUMULATIVE IMPACTS

General Vegetation

Effects on general vegetation will be similar to the Preferred/Large DWMA Alternative except for the following items.

The reduced DWMA size will result in less benefit from that designation and the associated conservation measures.

Elimination of burros from HMAs will eliminate impacts of grazing and trampling by these animals, especially near watering sites.

Special Status Plants

Effects on special status plants will be similar to the Preferred/Large DWMA Alternative except as described for general vegetation.

Biological Crusts

Effects on biological crusts will be similar to the Preferred/Large DWMA Alternative except as described for general vegetation.

Riparian/Wetland

Effects on riparian and wetland areas will be similar to the Preferred/Large DWMA Alternative except as described for general vegetation.

Elimination of burros from HMAs will eliminate impacts of grazing and trampling of riparian and wetland vegetation around springs and seeps.

Noxious Weeds

Effects from noxious weeds will be similar to the Preferred/Large DWMA Alternative except as described for general vegetation.

4.3.5 Wildlife Management

From Issue 1: Standards and Guidelines
Same as the Preferred Alternative.

From Issue 2: Recovery of the Desert Tortoise
Desert Tortoise
The effects resulting from the Small DWMA A Alternative on desert tortoise are similar in nature to the impacts described for the Preferred Alternative. Some impacts are greater in this alternative because the DWMAs are smaller.

The DWMAs are near the minimum size (1,000 sq. mi. = 640,000 ac.) specified in the Recovery Plan. Surface disturbance in the DWMAs will be reduced by 1) changing all BLM lands from MUC M to MUC L, 2) fencing the DWMA boundaries where conflicts are later identified, and 3) designating routes of travel as open, closed, or limited. Restricting stopping and parking to 30 feet from the centerline of the road would reduce off-road impacts slightly and restricting camping to designated areas will result in a reduction of disturbance along routes, but disturbance around designated campsites will likely radiate out at increased levels.

The elimination of non-hunting shooting may reduce tortoise gunshot deaths; however, such mortality is low in these areas (Berry 19XX). The requirement that all dogs be on leashes in the DWMAs will have unknown benefits because the amount of harassment of tortoises by dogs is not known.

The elimination of cattle grazing from the DWMAs will reduce the potential for competition for annual plants, trampling of tortoises and burrows, and alteration of plant composition. Eliminating the Chemehuevi Allotment will greatly reduce the acreage grazed and the apparent effects, but the number of cattle is so small (normally about 15 head) and infrequent (none in the last 10 years) that the actual beneficial effects will be small. The benefits of eliminating the Lazy Daisy Allotment from the DWMA will be greater since that allotment is grazed at light to moderate levels during the tortoise season of use. About 120,000 acres (5%) of existing critical habitat will still be grazed; almost all of this is in the Lazy Daisy Allotment.

The fencing of more than 657 miles of highway and railway will have similar effects as the Preferred/Large DWMA Alternative.

Closing some roads following the criteria noted in section 2.5 will benefit the tortoise through reduced vehicle mortality and illegal collection. The proposed "open" road designations would result in 13 miles per township (36 sections) for the Chemehuevi DWMA and 12 miles for the Chuckwalla DWMA.

A stronger commitment to land acquisition will be primarily a function of funding for purchases and exchanges. Some additional funds will be available from compensation for disturbance of a few natural communities (i.e, Desert Dry Wash Woodland and Chenopod Scrub, Sand Dunes, Playas); however, the low level of disturbance anticipated will produce little compensation funding.

A commitment to the funding of four permanent study plots will ensure that the existing monitoring program is maintained; additional research benefits are expected to continue based on the data collected on these plots. USGS will continue to execute this program.

Bighorn Sheep

The impacts of the Small DWMA A Alternative on bighorn sheep are similar in nature to the impacts described for the Preferred Alternative with the following exceptions:

Elimination of cattle grazing from the DWMAs will result in a small reduction of almost 27,000 acres in the amount of occupied range that is grazed by cattle (Table 4-22). It will also reduce the amount of movement corridor that is grazed by almost 75,000 acres. Benefits to bighorn sheep are likely to be small because the DWMA covers the lower elevations, which is the portion of the bighorn sheep occupied range used the least.

Table 4-22. Acres and percent of area for three categories of bighorn sheep use in cattle grazing allotments in the NECO Planning Area.

Bighorn sheep use categories	Lazy Daisy Cattle	Chemehuevi Cattle
Occupied Range	100,562 (6)	1,148 (<1)
Unoccupied Former Range		
Movement Corridor	58,608 (10)	33,793 (6)

Other Special Status Animals

The impacts of the Small DWMA A Alternative on special status animals are similar in nature to the impacts described for the Preferred Alternative. Specific differences in impacts between the Preferred Alternative and the Small DWMA A Alternative are described below. Table N-11 Appendix N shows the acres and percent of the range of each special status animal within the smaller proposed DWMAs.

Benefits (e.g., compensation, fencing boundaries, changes in fire management practices, restrictions on vegetation harvesting, designated campsites, land acquisition) of designation of the DWMAs are similar to those described for natural communities. In addition, impacts from the Lazy Daisy and Chemehuevi cattle allotments will be reduced by eliminating grazing. Complete benefits to special status animals from deletion of grazing are not know but the following is a list of potential benefits: increase in plant cover and biomass; increase in the diversity and abundance of lizards and other wildlife species (Busack and Bury 1974, Germano and Hungerford 1981, Germano and others 1983, Germano and Lawhead 1986) and decreased in soil compaction.

The benefit of having no open wash system is more than offset by the reduced DWMA size, the excised portion of the DWMA being the same as the open wash areas.

The fencing of 657 miles of highway, road, and railroad (Table 2-4) would significantly alter the barrier effects of linear transportation corridors. More specifically, passage of most rodents, lizards, small snakes, and tortoises would be greatly reduced. The spacing of gaps (i.e., culverts, bridges) would be critical in the maintenance of minimal gene flow. In some cases, culverts and/or bridges might be added as the fencing is installed during highway or roadway upgrade. Passage of other animals (carnivores, birds, bats, larger snakes) would likely not be affected greatly. The fencing would significantly reduce the mortality of rodents, lizards, small snakes, and tortoises; however, most of these species, except notably desert tortoise, have a reproductive capacity which can overcome this localized mortality.

As highway roadkills are reduced with fencing, raven populations might decrease to more natural levels, thereby reducing elevated predation levels on desert tortoise. If any program is established, raven removal could assist in further restoring natural populations of desert tortoise and other animals that might receive heavy predation by ravens.

Control of starlings at Corn Spring could aid in the natural reoccupation of native birds such as elf owl and woodpeckers resulting in a more natural insect-bird relationship.

From Issue 3: Management of Special Status Animals and Plants and Natural communities

Desert Tortoise

If and when the Ford Dry Lake and Rice Valley Sheep Allotments are eliminated [for reestablishment of bighorn sheep demes], there will be slight benefit to tortoise populations in those areas, which are outside of proposed tortoise DWMAs. Benefits will be small because these allotments are lightly and infrequently grazed mostly in years of high annual plant abundance.

Bighorn Sheep

Impacts are similar to the Preferred Alternative with the following exception:

Impacts from developing 21 artificial waters sites outside wilderness would be similar to those described in the Preferred Alternative but would be over a smaller area.

Other Special Status Species

Impacts are similar to the Preferred Alternative.

From Issue 4: Wild Horses and Burros

Desert Tortoise

All burro HMAs will be eliminated; removal of burros from the Chocolate/Mule Mountains HMA will eliminate burros on about 31,000 acres of existing critical habitat. There will be no grazing in the newly designated DWMAs. Positive benefits from the elimination of burro grazing in desert tortoise critical habitat are similar to the impacts of reducing cattle grazing, in that reduction in soil compaction, increase in plant cover, reduction in damage to waters and elimination of burrow trampling.

Bighorn Sheep

The proposed elimination of burros from Herd Management Areas will benefit bighorn sheep by reducing habitat damage, especially at water sources and reducing grazing competition.

Other Special Status Species

Elimination of burros from the Herd Management Areas will benefit special status animals by reducing habitat damage, especially in sensitive riparian habitat along the Colorado River and in Desert Dry Wash Woodland, increase forage and cover for wildlife, increase availability of water and allow over-grazed areas to recover. This will help maintain habitat quality, especially for riparian-obligate species such as Gila woodpecker (State-listed), elf owl (State-listed), vermilion flycatcher, and yellow warbler. Table N-7 Appendix N shows the acres and percent of range of special status animals within current burro HMAs.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

Desert Tortoise

The designation of routes of travel in the DWMAs will reduce effects of travel on roads as described for the Preferred Alternative.

Deleting the Johnson Valley to Parker and the Parker 400 race corridors would have a positive benefit to species and habitats by reducing impacts such as vegetation and soil compaction and erosion, widening of existing roads and trails, creation of new roads and trails, and potential for direct mortality and harassment of wildlife.

CUMULATIVE IMPACTS

General Wildlife

The effects on general wildlife will be similar to the Preferred Alternative except for the following.

Two of the DWMAs are smaller, and so associated conservation measures will affect general wildlife over a smaller area; however, the Multi-species WHMA will be increased accordingly.

The Lazy Daisy Allotment will be reduced even more, increasing benefits to general wildlife. Increased highway fencing will potentially provide greater benefits (i.e., reduced runover mortality) if funds can be found for this increased level of fencing. The elimination of horse and burro herd management areas (and horses and burros) will improve habitat conditions for general wildlife, especially migrating songbirds and bats and mammals using watering sites.

Desert Tortoise

The effects on desert tortoise will be similar to the Preferred Alternative except for the following:

Two of the DWMAs are smaller, and so associated tortoise conservation measures will provide benefits over a smaller area. The Lazy Daisy Allotment will be reduced even more than the Preferred Alternative, further reducing trampling of tortoises and burrows and potential competition for forage. Increased highway fencing will further reduce tortoise runover mortality, if funds can be found for this increased level of fencing.

Other Special Status Animals

The effects on other special status species will be similar to the Preferred Alternative except for the following.

The beneficial effects of designation of the DWMAs and the associated conservation measures will be less due to the smaller size of two DWMAs; however, the Multi-species WHMA will be increased accordingly.

The elimination of horse and burro herd management areas (and horses and burros) will improve habitat conditions for special status species that use riparian habitats and natural water sources, such as bighorn sheep, burro deer, and various birds.

Two additional bighorn sheep demes (five total demes) will be reestablished, thereby increasing the viability of the bighorn sheep metapopulation.

The withdrawal from mineral entry of significant bat roosts will provide protection against destruction of some habitat due to mining.

4.3.6 Wilderness Management

From Issue 1: Standards and Guidelines
Managing ecosystem health in accordance with Regional Standards, which pertain to soils, riparian and wetland areas, stream function, native species, and water and air quality, and managing grazing activities in accordance with the specified regional guidelines would benefit wilderness resources in the same manner as described for the No Action Alternative (see *Issue 1*, section 4.1.6).

From Issue 2: Recovery of the Desert Tortoise
Elimination of grazing in the Lazy Daisy allotment where it occurs within the Chemehuevi DWMA would likely enhance natural conditions within a portion of the Old Woman Mountains Wilderness. Natural systems would be more likely to freely function absent the grazing of cattle. The same would be true where the Chemehuevi allotment within the Chemehuevi DWMA overlaps the Whipple Mountains Wilderness. In general, management actions that move a wilderness from its existing condition to one of less human influence within legal constraints would benefit wilderness resources.

None of the actions specific to recovery of the desert tortoise as proposed in the NECO Plan under this alternative are anticipated to adversely affect wilderness resources. Where the Chemehuevi and Chuckwalla DWMAs overlap designated wilderness, the effects of actions designed to maintain or enhance tortoise populations as proposed under this alternative would likely benefit wilderness resources to the degree that natural conditions would be preserved, and plant and animal diversity would be protected. Site-specific projects to facilitate recovery of the desert tortoise would require separate environmental review, including a "minimum tool analysis" which specifies the manner in which projects are to be completed. Projects not conforming with provisions of the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans would not be allowed.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
The effects of actions in wilderness that maintain or enhance populations of special status animals and plants—including the development of new guzzlers in wilderness to ensure long-term viability of the Sonoran Desert Bighorn Sheep Metapopulation—and preserve or restore natural communities would be the same as those described for the Preferred/Large DWMA Alternative (see *Issue 3*, section 4.2.6).

From Issue 4: Wild Horses and Burros
Managing all herd areas in the NECO Planning Area and in Arizona jurisdiction for zero wild horses and burros would result in no adverse impacts to wilderness resources. Potential impacts to natural conditions if herd levels exceed the established AML would be averted, thereby potentially benefitting wilderness resources.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Whereas motorized vehicles are prohibited in wilderness except as authorized by the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management

plans, the extent to which unacceptable impacts to wilderness resources occur consequent to motorized-vehicle travel is proportional to the manner and degree of *unauthorized* incursions into wilderness areas. Motorized-vehicle access to wilderness boundaries under this alternative would be somewhat reduced within DWMAs relative to the Preferred/Large DWMA Alternative. As opportunities for access to wilderness boundaries are reduced, the potential for unauthorized incursions into wilderness is concomitantly decreased. The extent to which such incursions are anticipated is undetermined.

Under this alternative, competitive off-highway vehicle events would be prohibited throughout the NECO Planning Area except in areas designated "open" to motorized-vehicle use (off-highway vehicle recreation areas). This action would result in no adverse impacts to wilderness resources, and could benefit such resources to the degree that potential straying from approved race courses into designated wilderness, where such courses are located along wilderness boundaries, would be averted.

From Issue 6: Land Ownership Pattern
Effects on wilderness resources consequent to acquisition of in-holdings would be the same as described for the No Action Alternative (*Issue 6*, section 4.1.6).

CUMULATIVE IMPACTS
The cumulative effects of the actions proposed under this alternative would be the same as those described for the Preferred/Large DWMA Alternative.

4.3.7 Livestock Grazing Management

From Issue 1: Standards and Guidelines
Impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative.

From Issue 2: Recovery of the Desert Tortoise
There would be an estimated 37 percent reduction of perennial forage in the Lazy Daisy allotment. An estimated 20 percent of the perennial forage (638 AUMs) would be excluded from the northern portion of the allotment This reduction of grazing use would leave 2,554 AUMs or 212 cattle for year-long grazing use. No ephemeral use could be authorized. While not as significant as the Preferred Alternative, this is a 22 percent reduction in cattle use. This is a significant and adverse consequence to the lessee. Current terms and conditions would become a condition of the lease.

The Chemehuevi Allotment would be canceled and future livestock production would cease.

Construction of range improvements under this alternative would be more costly, and would have the largest impacts to soils and vegetation of any of the alternatives (Chapter 2, Table 2-7). There are 61.5 miles of fence, 7 cattleguards, 4 water sites, 4 miles of water pipe, 6 water facilities and 3 corrals needed to keep cattle out of the DWMA and improve cattle distribution. These improvements would not be completed during the short-term, and depending upon the funding sources, it would take more than ten years to complete. However, the financial burden is so great under this alternative that implementation may not occur during the long term.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
The result of deleting the Ford Dry Lake and the Rice Valley domestic sheep grazing allotments would be a complete removal of livestock production from these areas. However, the impact to the grazing operators would be negligible because the leases are so infrequently grazed.

CUMULATIVE IMPACTS
When the Lazy Daisy Allotment is retired and the Chemehuevi Allotments canceled, cattle production would be forgone on these Public Lands and opportunities for future grazing use do not exist elsewhere in the Planning Area. The lessee for the Lazy Daisy Allotment would realize a reduction of income and a potential loss of current lifestyle, and the lessee for Chemehuevi Allotment may lose all of the potential area for potential ephemeral grazing use.

Current grazing management within the Ford Dry Lake and Rice Valley Allotments would be affected by the cancellation of the leases. Sheep production would be forgone on these Public Lands and opportunities for future grazing use do not exist elsewhere in the Planning Area. Financial impacts are not known.

4.3.8 Wild Horses and Burro Management

From Issue 1: Standards and Guidelines
Same as the No Action Alternative.

From Issue 2: Recovery of the Desert Tortoise
This action has the most significant negative impacts to the management of burros in which all burros would be removed from the NECO Planning Area including portions along the California side of the Colorado River (see Cumulative Impacts section).

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Direct impacts related to fencing all waters would include: displacement of burros in the area if they aren't removed prior to fencing. If these waters are fenced prior to the burros removal, the burros will be forced to find alternative unfenced water sources in other geographical areas which may establish herds outside the herd areas, or burros may die of dehydration.

From Issue 4: Wild Horses and Burros
Elimination of burros from the HAs would have a significant impact on wild horse and burro management by reducing the number of HMAs with a 0 AML from one to three.

CUMULATIVE IMPACTS
The combination of forces from all issues: physical and biological resource values, other agencies mandates, and the complexities and cost of managing the Wild Horses and Burros (WH&B) program in this particular mix of resources and jurisdictions - would eliminate managing burros from the entire Planning Area. While this would enhance other values, the WH&B program would be diminished on a regional basis (California Desert) to the point of almost total elimination. HAs would remain and HMAs could some day be reestablished if the picture for Public land Health were to support them. It would take several years to remove all animals and potentially impossible to remove them all to absolute zero. Certainly the long-term cost of managing a WH&B and other species (as their management is related to burros) programs along the Colorado River, once burro

removals had been completed, would be eliminated. These include residual, intermittent impacts from burros roaming off HMAs, need for burro exclosures at waters, and some monitoring and research needs.

4.3.9 Recreation Management

From Issue 1: Standards and Guidelines

Managing ecosystem health in accordance with Regional Standards and managing grazing activities in accordance with the specified regional guidelines would result in the same effects as discussed under No Action Alternative relative to National Fallback Standards and guidelines (see *Issue 1*, section 4.1.9).

From Issue 2: Recovery of the Desert Tortoise

The discussion under the Preferred/Large DWMA Alternative about routes of travel designations and their impacts to recreational opportunities is applicable to this alternative (see *Issue 2*, section 4.2.9).

This alternative further limits opportunities for stopping, parking, and vehicle camping relative to the No Action Alternative and the Preferred/Large DWMA Alternative. Vehicle camping alongside routes with few restrictions as to location (except as regards distance from a route) has long been a recreational opportunity often unique to public lands. In areas under jurisdiction of the National Park Service, vehicle camping is generally more restrictive. The same is true for many areas in national forests and state parks. In 1994 upon passage of the California Desert Protection Act, opportunities for vehicle camping were adversely affected with designation of wilderness in the California desert; the general public was prohibited from using motorized vehicles in these areas. Actions which further limit vehicle camping to *designated* areas in DWMAs could substantially affect opportunities for this popular recreational pursuit dependent on the extent of sites or areas identified where vehicle camping is allowed. The fewer sites or areas designated for vehicle camping, the greater the adverse impacts, and vice versa. The NECO Plan does not indicate the number or location of such sites or areas.

Restricting stopping and parking to 30 feet from centerline of an approved route in DWMAs would minimally affect opportunities for recreation. As a common practice, vehicles generally pull off the road to stop and park no more than the proposed limitation except when a feature of interest might be further away. Where an existing route is available for use, vehicles are usually driven to the site. The 30-foot limitation in DWMAs would require that individuals walk additional distances where an approved route is *not* available for use.

Limiting the discharge of firearms within DWMAs to hunting of game between September 1 and March 1 may adversely affect opportunities for target shooting. Target shooting on public lands would be restricted to such lands outside DWMAs or non-public lands within DWMAs with landowners' permission, thereby requiring additional travel to pursue this activity in certain circumstances. To the degree that target shooting is an incidental activity pursued in conjunction with other recreational endeavors (e.g., camping and sightseeing), the quality of the recreational experience in DWMAs may be concomitantly reduced. However, the extent to which target shooting is affected by the proposed restriction is undetermined; the popularity of this activity within the NECO Planning Area has not been established.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Under this alternative, impacts to recreation would be the same as discussed for the Preferred/Large DWMA Alternative (see *Issue 3*, section 4.2.9).

From Issue 4: Wild Horses and Burros
Actions proposed under this alternative are not anticipated to affect opportunities for recreation.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Managing motorized-vehicle access in accordance with MUC guidelines established in the CDCA Plan, as amended, would generally affect opportunities for recreation in the same manner as described under *Issues 2* and *3*, section 4.2.9 (Preferred/Large DWMA Alternative) except within DWMAs. In DWMAs, opportunities for recreation that involve the use of motorized-vehicles would be further constrained as only paved routes, maintained dirt roads, and recreational touring routes would be available for use under this alternative.

Where there occurs the greatest density of routes within DWMAs, it can be expected that impacts to vehicle-dependent recreation would be the greatest; more routes would be closed in these areas than in other areas. For example, the portion of the Chemehuevi DWMA east of Highway 95 contains numerous routes that are not paved or maintained, and are not included in the recreational touring network. The same is true for the area north of National Trails Highway near Essex, the Carson's Well area north of the Turtle Mountains, and various locations in the Chuckwalla DWMA. A greater proportion of routes would be closed in these areas; vehicular recreation would be proportionately affected in an adverse manner. Although access *throughout* the NECO Planning Area could be considered as reasonable under this alternative, opportunities for exploration with a four-wheel drive vehicle would be significantly diminished within DWMAs.

Elimination of the *Parker 400* corridor would result in no adverse impacts to recreational opportunities. It has been a decade since the *Parker 400* event last occurred in California; interest in reestablishing the event on the California loop is no longer being expressed. The *Parker 400* event now occurs entirely in Arizona.

Elimination of the *Johnson Valley to Parker* corridor would adversely affect opportunities for competitive off-highway vehicle events only if interest recently expressed to rekindle the "Checkchase" or similar event is expressed in the form of an application to the BLM for a special recreation permit. It has been more than a decade since the event last occurred in this corridor; interest in sponsoring another event has only recently surfaced.

Restricting competitive off-highway vehicle events to "open areas" (designated off-highway vehicle recreation areas) in conjunction with eliminating the *Johnson Valley to Parker* corridor would diminish opportunities for this form of recreation, but again, only to the degree that interest in sponsoring such events is expressed in the form of an application to the BLM for a special recreation permit. If interest is not sufficiently elevated to that degree, restricting competitive vehicle events to "open areas" would have no adverse impacts to recreational opportunities.

Modification of the "300-foot rule" for stopping, parking, and vehicle camping *outside* DWMAs such that the 300-foot distance is measured from a route's centerline instead of its edge would not substantially affect opportunities for these activities.

From Issue 6: Land Ownership Pattern
Actions proposed under this alternative are not anticipated to affect opportunities for recreation (see discussion for the No Action Alternative: *Issue 6*, section 4.1.9).

CUMULATIVE IMPACTS
Except for further limitations on stopping, parking, and vehicle camping—which would only be further limited relative to the distance from a route's centerline—the cumulative effects on casual recreation would be the same as described for the Preferred/Large DWMA Alternative. Opportunities for off-highway vehicle racing, on the other hand, would be significantly diminished in the NECO Planning Area with elimination of the *Johnson Valley to Parker* competitive recreation route and the restriction of all such activities to off-highway vehicle recreation areas. The cumulative effect of actions that restrict racing activities is greatest under this alternative. Opportunities for such activities in the NECO Planning Area would be virtually eliminated.

4.3.10 Motor Vehicle Access

From Issue 1: Standards and Guidelines
The effects on motorized-vehicle access consequent to managing ecosystem health in accordance with Regional Standards and managing grazing activities in accordance with the specified regional guidelines would be the same as described for the No Action Alternative relative to National Fallback Standards and guidelines (see *Issue 1*, section 4.1.10).

From Issue 2: Recovery of the Desert Tortoise
Under this alternative, impacts to motorized-vehicle access consequent to actions proposed for the recovery of the desert tortoise would be the same as discussed for the Preferred/Large DWMA Alternative (see *Issue 2*, section 4.2.10).

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Under this alternative, impacts to motorized-vehicle access consequent to actions proposed for the conservation of special status species and natural communities would be the same as discussed for the Preferred/Large DWMA Alternative (see *Issue 3*, section 4.2.10).

From Issue 4: Wild Horses and Burros
Actions proposed under this alternative are not anticipated to affect motorized-vehicle access.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Managing motorized-vehicle access in accordance with MUC guidelines established in the CDCA Plan, as amended, would limit access as described under *Issues 2* and *3*, section 4.2.10 (Preferred/Large DWMA Alternative). In accordance with the Small DWMA "A" Alternative, access would be additionally limited in DWMAs; the effects of such further limitations on recreation are addressed under *Issue 5*, section 4.3.9 (Recreation Management).

Access for *other* than casual purposes (access related to activities which require specific authorizations) would be addressed through the applicable permitting process. The authorized use of a "closed" route usually limits this use in some manner (e.g., number of trips, season of use, speed limits, accompaniment by a wildlife biologist, etc.) and/or requires mitigation in some form (e.g., restoration of impacts, payment of mitigation fees, etc.). Route designations, which are applicable principally to casual use, would have little to no effect on access for non-casual purposes.

Manageability:

Manageability of motorized-vehicle activities outside DWMAs is the same as described for the Preferred/Large DWMA Alternative (see *"Manageability," Issue 5*, section 4.2.10). Within DWMAs, however, manageability under this alternative would likely be more problematic. As increasing numbers of routes are closed to motorized vehicles, especially where densities of routes are greatest, increased incidences of noncompliance with route closures can be expected, especially if the closures are not perceived as being reasonable to accomplish the goals of the plan.

Under this alternative wherein access in DWMAs is limited to paved routes, maintained dirt roads, and recreational touring routes, there is no biological basis suggested for these additional closures; the proposal is not made specifically for the recovery of the desert tortoise or conservation of special status species and natural communities. Although it is reasonable to conclude that further prohibitions of motorized vehicles in DWMAs *may* benefit such recovery and conservation efforts, it *cannot* be assumed that absent these additional measures the NECO Plan goals would not be achieved. Under these circumstances, manageability of motorized vehicles in DWMAs could be less than completely successful.

From Issue 6: Land Ownership Pattern

Under this alternative, impacts to motorized-vehicle access would be the same as discussed for the No Action Alternative (see *Issue 6*, section 4.1.10).

CUMULATIVE IMPACTS

Motorized-vehicle access and opportunities for recreation are closely linked in the California desert. The cumulative effects on motorized-vehicle access under this alternative, therefore, are the same as described in the section entitled "Recreation Management" for the Small DWMA "A" Alternative.

4.3.11 Mineral Management

The following affects are additional or change to affects described in the Preferred/Large DWMA Alternative. No attempt is made to quantify the number people, companies or operations affected by the following.

From Issue 1: Standards and Guidelines

There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.

From Issue 2: Recovery of the Desert Tortoise

There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place, but smaller DWMAs would mean that fewer acres would be subject to described affects.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities

There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation
Access in DWMAs would be considerably more reduced, having a greater affect on casual mining activity and creating more instances of access authorizations.

From Issue 6: Land Ownership Pattern
Extended periods of time may be required to complete acquisition goals as there would be fewer acres in higher priority DWMAs and more acres in lower priority WHMAs.

CUMULATIVE IMPACTS
There is essentially no difference in cumulative impacts from those described under the Preferred/Large DWMA Alternative. The area and effects of DWMA would be less.

4.3.12 Cultural Management

From Issue 1: Standards and Guidelines
Same as the No-Action Alternative except that under that Regional Standards for Public Land Health are applied and the described benefits would extend throughout the planning area.

From Issue 2: Recovery of the Desert Tortoise
The Small DWMA A alternative will designate DWMAs the same as the Preferred. Cumulative new surface disturbance on Federal and State administered lands will be limited to 3 percent of the Federal/State proportion of the DWMA. This action should result in greater protection and preservation of cultural resources within the DWMA boundaries, although not to the extent of the Preferred alternative. All other analysis remains the same as the preferred.

Grazing Management
In the Small DWMA A alternative, current range management practices will continue. Livestock can adversely effect cultural resources, including historic structures, archaeological sites and historic landscapes. The primary impact, however, is damage to artifacts and site integrity resulting from breakage, chipping, horizontal movement, and vertical displacement of artifacts, which generally compromises the information potential about discrete utilization areas of a site. Grazing impacts are greatest in areas where cattle congregate around springs, water courses, troughs, shade zones, and salt licks.

Approximately 140,357 acres of the Lazy Daisy cattle allotment will be eliminated. This will have a positive benefit for cultural resources by reducing the threats from grazing to any recorded sites. Currently there are 45 recorded resources within the existing allotment boundaries (Table 4-9). Only 27 sites would remain within the reduced allotment boundaries in this alternative.

The Chemehuevi Grazing Allotment will be eliminated. Analysis is the same as for the Preferred Alternative.

Management policy will continue to be to analyze effects to cultural resources from grazing during the NEPA review of rangeland lease renewals and would continue in the Small DWMA A alternative. New range improvements will continue to be reviewed under Section 106 at the time they are proposed.

From Issue 3: Management of Special Status Animals and Plants and Natural Communties

Same as Preferred alternative, except that both the Ford Dry Lake and Rice Valley domestic sheep allotments are eliminated. The Rice Valley domestic sheep allotment boundaries will be reduced by 9,264 acres. Both allotments currently encompass 135,247 acres of land. Seven sites are recorded within the Rice Valley allotment and 53 sites are recorded in the Ford Dry Lake allotment (Table 4-9). Elimination of the Ford Dry Lake allotment will remove 49,682 acres from grazing and will eliminate the threat from grazing to the 53 known sites within the allotment. Elimination of the Rice Valley allotment will remove 85,565 acres from grazing and will eliminate the threat from grazing to the seven known sites within the allotment. The elimination or reduction in size of these allotment will have a positive benefit to the protection and preservation of cultural resources that have yet to be recorded.

From Issue 4: Wild Horses and Burros

Analysis is the same as the No-Action alternative. Under the Small DWMA A Alternative, Herd Areas and Herd Management Areas are eliminated. Herd populations will be removed. There are no specific on-the-ground actions proposed in this plan for this alternative. Specific actions that are carried out to meet the standards may satisfy the definition of an "undertaking", such as placement of protective exclosures, water troughs, gathering traps, or other ground disturbing activities, and may have the potential to affect historic properties. Those actions will be reviewed in accordance with Section 106 of the NHPA during the course of normal NEPA review at the time they are proposed.

The Preferred alternative would remove 930,906 acres from management for Wild Horse and Burro herds. This would result in a positive benefit to cultural resources by reducing the number of known sites subject to impact from herd behavior by 816 sites (Table 4-10).

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations

General analysis is the same as the No-Action alternative (see Table 4-11), except that in DWMAs the only "open" routes are those already open under specific use authorization including county maintained roads.

Under the Small DWMA A Alternative, 444 cultural resources have been identified as located on BLM managed lands and falling within the 600' APE for routes that are under review for "open"designation outside DWMAs (Table 4-11). Fifty-three sites are located within DWMAs. Of these, 152 sites have either been listed, determined eligible, or are considered likely to be eligible and 129 of these sites are considered to have qualities and values that might be adversely affected by activities authorized within the APE of a route. In this alternative, 109 route segments have been identified has having potential conflicts with cultural resources. These segments will not be designated either "open" or "closed" pending a physical assessment of the sites and evaluation of threat that proximity to an open route might pose. If it is determined that these routes may have or have had an adverse effect on historic properties, BLM will close these routes or will consult with SHPO on the appropriate course of action to resolve the effect.

Competitive Off-Highway Vehicle Events

Analysis remains the same as the No-Action alternative. Under this alternative, all competitive recreation routes would be eliminated. The 18 recorded sites located within the APE for these corridors would no longer be threatened by activities resulting from competitive recreation events.

From Issue 6: Land Ownership Pattern
Same as No-Action Alternative.

From Issue 7: Access to Resources for Economic and Social Needs
Same as No-Action Alternative.

From Issue 8: Incorporation of Wilderness Areas into CDCA Plan
Same as No-Action Alternative.

Cumulative Impacts
In the Small DWMA A alternative, there would be a net indirect benefit to the protection, preservation, and management of cultural resources from the adoption of Regional Standards and Guidelines for rangeland health. There will be a direct benefit to cultural resources by removing the Chemehuevi Range and Lazy Daisy range allotments from grazing, eliminating Herd Management Areas, and limiting cumulative surface disturbance within DWMAs to three percent. There will be further benefit in changing MUC classifications from M to L. Reduction of the authorized use area along routes in DWMAs to 30', will directly benefit cultural resources by reducing threats from off-highway vehicle, camping, and parking along those routes. There will also be a direct benefit to cultural resources by reducing the length and scale of competitive race corridors.

4.3.13 Lands and Land Use Authorization

The following affects are additional or change to affects described in the Preferred/Large DWMA Alternative. No attempt is made to quantify the number people, companies or operations affected by the following.

From Issue 1: Standards and Guidelines
There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.

From Issue 2: Recovery of the Desert Tortoise
There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place, but smaller DWMAs would mean that fewer acres would be subject to described affects.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place, although the area of WHMAs increases to the extent that DWMA area decreases.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation
Access in DWMAs would be considerably more reduced, having a greater affect on casual access to private lands and various right-of-way.

From Issue 6: Land Ownership Pattern

There would be no essential change other than it may require a longer period of time to complete acquisition goals in this alternative as there would be fewer acres in higher priority DWMAs and more acres in lower priority WHMAs.

CUMULATIVE IMPACTS

There is essentially no difference in cumulative impacts from those described under the Preferred/Large DWMA Alternative. The area and effects of DWMA would be less.

4.3.14 Socio-economic

From Issue 1: Standards and Guidelines

Impacts would be similar to the No Action Alternative for grazing allotments. Implementation of regional standards may increase costs associated with continued use of the lease.

Impacts to the public and surrounding communities are indirect and are generally minor, both locally and regionally. In the long-term, public lands, which meet standards, are a benefit, both for local communities and for regional tourism.

From Issue 2: Recovery of the Desert Tortoise

Construction of range improvements according to this alternative would be costly, although impacts are not as great as the Small DWMA B Alternative. The proposed range improvements on the Lazy Daisy Allotment include 61.5 miles of fence, seven cattleguards, four water sites, six water facilities with four miles of pipe, and three corrals. The total cost for all of the improvements under this alternative would be $309,520. It is anticipated that these improvements would be completed during short-term, and depending upon the timing and funding sources, development could take more than ten years. All existing cattleguards would be modified to prevent entrapment of desert tortoises. New cattleguards will be designed to prevent entrapment of desert tortoises.

Cancellation of the Chemehuevi Allotment, loss of a large portion of the Lazy Daisy Allotment, and cancellation of ephemeral grazing use would directly impact livestock production on 272,678 acres. Deleting the Chemehuevi Cattle allotment would have a negative impact on the grazing operator by eliminating the economic benefit from cattle operations. The economic impact appears to be minimal however, because the allotment is ephemeral and is only grazed in years when forage production is greater than 350 pounds-per-acre. The Chemehuevi Cattle allotment hasn't been grazed since 1989. Based on past ephemeral use, impacts to Lazy Daisy Allotment appear minor. The potential voluntarily relinquishment by the lessee of all grazing use in Lazy Daisy Allotment has no effect until activated. After the lessee requests relinquishment, cattle production would cease on 470,207 acres.

Requiring compensation at a 5:1 ratio inside DWMA boundaries could cause an impact to certain permitted uses such as mining, communication site construction and utility construction by increasing the amount of compensation required.

From Issue 3: Management of Special Status Animals and Plants and Natural communities

Deleting Rice Valley Sheep allotment would have a negative impact on the grazing operator by eliminating the economic benefit from sheep operations. The economic impact would be minimal however, because the allotment is ephemeral and is only grazed in years when forage production is greater than 350 pounds-per-acre. The Rice Valley Sheep allotment has been grazed 2 times since 1989.

Expenses incurred by mining operators due to protecting the bat populations that my roost in adits and shafts has yet to be determined. Other issues that may increase operating costs or cause changes to life style patterns are also unknown at this time.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

Potential socio-economic impacts to recreation operations are as follows:

1. Restricting stopping, parking and camping to 100 feet will have little impact on the public's access to the Planning Area. No estimation of recreation visitor day numbers are available, therefore the potential socio-economic impacts associated with vehicle camping in these areas is unknown at this time.
2. Designating routes as "open", "closed" or "limited" will not significantly affect traffic patterns. Less than 5% of inventoried routes are proposed for closure and wash-closed zones will have little to no significant soci-economic affect on the human component.

3. Effect of greater number of closed wash systems and roads in DWMAs and deletion of all competitive racing through the Planning Area would have a moderate effect upon recreation opportunities.

From Issue 6: Land Ownership Pattern

In looking at this alternative, there are two categories of land ownership that will potentially have socio-economic impacts. These land adjustments categories relate to public lands that will be in protected zones and private lands that the Federal government would like to exchange or purchase. The least complicated adjustments that would be made between the Agency and the owners are the single owner per section proprietorship, and the 2-5 owners per section proprietorship. Table 4-19 shows changes in the acres of land identified by public and private classifications. These totals reflect the potential change within the management areas. Social well-being concerns that may impact private owners' decision-making related to the proposed adjustments and their willingness to participate in increasing public land ownership are unknown at this time.

Working with the fewest number of owners will significantly reduce the cost to the Agency and create less disruption to the owners in the more densely owned parcels. The land available for adjustment in the eastern section of the Planning Area, closest to the cities of Needles and Blythe, may have the most appeal to some of the private land owners since there are areas of higher population and have the greatest potential for generating revenue from tourism activities. Other public lands outside of the Planning Area may need to be considered for exchange in order to accomplish public land consolidation objectives. These exchanges outside the Planning Area may increase social and economic well-being, and thus, have appeal to other private land owners. Accomplishing acquisition through exchanges is the preferred method, however it is impossible to predict what methods may prevail.

Table 4-23. Proposed Changes to Public and Private Acres

County	Small DWMA A Alternative	
	Private*	Public**
San Bernardino	68,281	1,754,963
Riverside	96,509	1,711,383
Imperial	58,368	605,370

*combined totals of acres privately owned in the 1 and 2-5 density classes. These acreage figures indicated inclusion in proposed exchanges or purchase programs.
**Total Public Lands in Proposed Zones.

CUMULATIVE IMPACTS

Same as for the Preferred Alternative with the following exceptions. The closing of many more miles of routes and all washes on an area basis in DWMAs and all opportunity for competitive vehicle racing represents a significant reduction of casual use access and driving-based recreation opportunities. Closing the Rice grazing allotment and further reducing the Lazy Daisy allotment could be economically difficult for both allotment holders. Tortoise fencing would be dramatically greater than Overall, this alternative is the most restrictive and impacting of the four described.

4.4 Small DWMA B Alternative

4.4.1 Air Quality

From Issue 1: Standards and Guidelines

The same as the No Action Alternative.

From Issue 2: Recovery of the Desert Tortoise

The designation of approximately 1,384,310 acres of Federal land as ACECs would have a slight positive effect on air quality through implementation of specific management prescriptions designed to reduce surface disturbance. The Chemehuevi DWMA (ACEC) reduces the amount of grazing by 176,838acres and designates routes as open, closed or limited. Although the reduction in surface disturbance is 64% less than the Small DWMA A Alternative, there would be a slight increase vegetative cover on these acres, reducing the volume of PM_{10} emissions.

Reducing grazing by 39 percent will result in similar positive effects to air quality as the preferred/Large DWMA Alternative.

Limiting surface disturbing activities to 3% versus the 1% in The Preferred/Large DWMA Alternative could impact air quality slightly more by allowing a greater number of surface disturbing activities to occur in the DWMA. These activities could include the removal of vegetation, cover and litter and the disturbance of top soils which increase PM_{10} emissions.
Wildfire suppression efforts would result in reduced particulate (PM_{10}) production and visibility impairment from smoke and wild-blown dust. Short term impacts from suppression potential increase levels of particulates from surface disturbance of fire fighting equipment and operations. However, successful suppression efforts minimize the number of acres impacted as a result of vegetative cover loss.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Same as the Preferred/Large DWMA Alternative.

CUMULATIVE IMPACTS
Impacts are similar to those discussed under the No Action Alternative.

4.4.2 Water Quality

From Issue 1: Standards and Guidelines
The same as the Small DWMA A Alternative .

From Issue 2: Recovery of the Desert Tortoise
Same as the Small DWMA A Alternative with the following exception:

Reduced grazing on 47,682 acres is 30 % less than the Preferred/Large DWMA Alternative and will likely result in an improvement to water quality at springs where cattle had previously caused an amount of degradation.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Designation of a 50% distribution WHMA will have a positive benefit to water quality through the implementation of specific prescriptions aimed at improving habitat condition. Compared to the Preferred/Large DWMA Alternative, the benefit will be less due to the reduced size of the WHMA.

Closure of routes within 1/4 mile of a natural or artificial water source will have a small positive benefit to water quality by reducing soil erosion, soil loss and sedimentation contamination. Improving vegetative conditions on Natural Communities such as springs and seeps, dunes and plays and microphyll woodland would have a positive benefit to water quality by improving protective ground cover and soil holding capability. Vegetation is a key component of a healthy watershed and as a result of improved dissipation of energy associated with storm water runoff, erosion and soil loss would be minimized improving water quality.

CUMULATIVE IMPACTS
Impacts are similar to those discussed under the No Action Alternative.

4.4.3 Soil Quality

From Issue 1: Standards and Guidelines
The same as the Small DWMA A Alternative.

From Issue 2: Recovery of the Desert Tortoise
Impacts to soil quality through implementation of the Small DWMA B Alternative are similar to the Preferred/Large DWMA Alternative with the following exception:

Grazing activities will continue on 369,670 acres which may cause impacts to soil quality primarily through reduction of vegetative and litter cover that protects the soil from erosional processes and, to some degree, soil compaction that channels and concentrates storm water runoff.

Grazing is reduced 61% from the No Action Alternative which will potentially result in improved soil quality on 235,783 acres.

Limiting surface disturbing activities to 3% versus the 1% in The Preferred/Large DWMA Alternative could impact soil quality slightly more by allowing a greater number of surface disturbing activities to occur in the DWMA. These activities could include the removal of vegetation, cover and litter and the disturbance of top soils which increase the erodibilty of soils. Soil erosion and loss on the disturbed areas would increase through the dissipation of energy associated with storm water runoff.

CUMULATIVE IMPACTS
Impacts are similar to those discussed under the No Action Alternative.

4.4.4 Vegetation Management

From Issue 1: Standards and Guidelines
General Vegetation: Impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative.

Biological Soil Crusts: Slight improvement may be seen in areas where grazing use has been canceled, otherwise impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative.

Riparian/Wetland: Impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative. Cancellation of the northern and eastern portions of the Lazy Daisy Allotment would positively affect riparian/wetland areas in those areas.

Noxious Weeds: Impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative.

Trends and conditions for vegetation outside allotments would continue as currently observed.

From Issue 2: Recovery of the Desert Tortoise
Natural Communities
Impacts from designation of DWMAs would be the same as in the Small DWMA A Alternative.

Impacts from surface disturbance to natural communities could be higher because the limit on cumulative new surface disturbance is 3%. Although disturbance is not expected to exceed 1 percent over the next 30 years, the higher value could allow for more projects to be developed in DWMAs whereas the lower 1% limit may deter projects due to concern over reaching the limit.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Special Status Plants
The impacts described for the Small DWMA A generally apply except that with the total Conservation Zone being smaller, the inclusion of these plants is somewhat less.

From Issue 4: Wild Horses and Burros
Same as the Preferred Alternative.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Benefits and impacts related to LTVAs is the same as for the No Action Alternative.

Potential impacts due to competitive racing are generally the same as for the No Action Alternative with the exception of the elimination of the Parker 400 route.

Impacts from the pattern of road designations would be about the same as for the Preferred Action with two exceptions: fewer "open" roads in DWMAs will benefit plant communities and special status plant species; a slightly greater number of "open" roads outside DWMAs would add corresponding additional impact.

CUMULATIVE IMPACTS
General Vegetation
Effects on general vegetation will be similar to the Small DWMA A Alternative except that the establishment of the Piute HMA will result impacts associated with burro grazing and trampling, especially near watering sites.

Special Status Plants
Effects on special status plants will be similar to those described for the Small DWMA A Alternative except as described for general vegetation.

Biological Crusts
Effects on special status plants will be similar to those described for the Small DWMA A Alternative except as described for general vegetation.

Riparian/Wetland
Effects on special status plants will be similar to those described for the Small DWMA A Alternative except as described for general vegetation.

Noxious Weeds
Effects on special status plants will be similar to those described for the Small DWMA A Alternative.

4.4.5 Wildlife Management

From Issue 1: Standards and Guidelines
Same as the Preferred Alternative.

From Issue 2: Recovery of the Desert Tortoise
Desert Tortoise
The effects resulting from the Small DWMA B Alternative on desert tortoise are similar in nature to the impacts described in the Preferred DWMA Alternative with the following exceptions:

Existing HMPs and ACECs will be incorporated into the DWMAs rather than deleting them. It is not likely there will be any positive or negative impacts from this action.

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Cumulative new surface disturbance will be limited to three percent versus one percent in the Preferred/Large DWMA Alternative which could result in a higher level of new surface disturbance and reduced incentive for project rehabilitation.

Grazing will continue on both cattle grazing allotments but will be reduced in the Lazy Daisy by 11,606 acres and by 38,707 acres on the Chemehuevi allotment. In areas excised from the allotments positive direct impacts could include a reduction in grazing pressure, increased cover and biomass (J.E. Lovich and D. Bainbridge 1999)and improved soil conditions.

The effects of road closures in DWMAs is the same as for the Small DWMA A Alternative.

Only 26 miles of fencing along Interstate 10 and 40 and Highway 95 are proposed. This is only nine percent of the amount proposed in the Small DWMA A Alternative and only 28 percent of that proposed in the Preferred/Large DWMA Alternative. However, the 58 miles is in the highest tortoise density along the busiest highways. Thus, these highways are considered the most severe as functional barriers to tortoise movements. The Interstate Highways significantly fragment tortoise populations. High roadkills on these wide, busy highways presumably provide a considerable food supplement for ravens. Direct positive impacts to desert tortoise from fencing these roads would includes reduced number of deaths from vehicles and an increase in the density of desert tortoise on either side of the fenced road (Boarman et al. 1992).

Non-lethal control of ravens (mitigation, sanitation, etc) will greatly help in the control and proliferation of ravens, but there is still the potential that a few ravens will be dramatically selective on juvenile tortoises. Limiting the removal of such ravens through non-lethal means, only, will be costly and largely ineffective.

Bighorn Sheep

Impacts from Tortoise Recovery Issue is similar in nature to the impacts described in the Preferred/Large DWMA Alternative. Those differences are described below.

The limit on cumulative new surface disturbance is three percent versus one percent in the Preferred/Large DWMA Alternative which could result in increased surface disturbance.

Eliminating portions of the Lazy Daisy and Chemehuevi Cattle Allotments will result in very little direct or indirect impact to bighorn sheep because the area being excised is in the lower elevations.

Other Special Status Species

Continuing grazing on reduced portions of the Lazy Daisy and Chemehuevi Allotments with various restrictions could enhance the condition of existing forage and improve quality of habitat. Special status animals would benefit from a reduction in grazing pressure, increased cover and improved habitat conditions in those areas closed to livestock grazing.

From Issue 3: Management of Special Status Animals and Plants and Natural communities

Bighorn Sheep

Augmenting natural and existing artificial waters with only a total of 22 new artificial waters would likely fall short of significantly increasing bighorn sheep over current levels. Conversely, proximity changes in relative numbers of native species from such waters would be considerably reduced.

From Issue 4: Wild Horses and Burros

Impacts are similar in nature to those described for the Preferred Alternative with the following exception:

Establishing the Piute Mountain HMA could cause additional impacts to desert tortoise where burro grazing occurs within the HMA. The HMA is inside the DWMA and there may be additional impacts to desert tortoise from burrow trampling, competition for forage and degradation to habitat through reduced biomass and plant cover.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation

The impacts are similar in nature to those described for the Preferred Alternative with the following exception:

Stopping, parking and camping will increase from 100 feet in the Preferred/Large DWMA Alternative to 300 feet in this alternative. This may increase impacts to habitat and species in areas where increased surface disturbance occurs.

CUMULATIVE IMPACTS

General Wildlife

The effects on general wildlife will be similar to the Small DWMA A Alternative except for the following.

The Multi-species WHMA is smaller, and so associated conservation measures will affect general wildlife over a smaller area.

The commitment to limit cumulative new surface disturbance in DWMAs will be only 3 percent rather than 1 percent. Therefore, potentially more wildlife habitat in DWMAs may be disturbed. The Chemehuevi Allotment will be reduced in size, but not eliminated entirely. However, grazing intensity is extremely light and only occasional. Highway fencing will be considerably less, resulting in smaller reductions in wildlife mortality. Camping and Parking will be 300 feet as in the No Action Alternative.

Burro HMAs will be established with specific AMLs. Impacts on general wildlife will be greatest where burros drift out of these HMAs or when numbers exceed carrying capacity prior to removal. The Piute Mountain HMA will be new and will negatively affect general wildlife in that area.

Desert Tortoise

The effects on desert tortoise will be similar to the Small DWMA A Alternative except for the following.

The Chemehuevi Allotment will be eliminated only in the highest density tortoise habitat; however, grazing intensity is very light in this allotment. Highway fencing will be installed only along Interstate Highway 10 and 40 and Highway 95. This will give the least reduction in desert tortoise mortality. The Piute Mountain HMA for burros will be located in a DWMA.

Other Special Status Animals

The effects on other special status species will be similar to the Small DWMA A Alternative except for the following.

The Multi-species WHMA is smaller, and so some associated conservation measures will affect special status species over a smaller area.

Only 21 new water artificial watering sites for bighorn sheep or deer will be developed. This will provide limited expansion of usable range for existing bighorn sheep demes. Four bighorn sheep demes will be reestablished.

Burro HMAs will be maintained in the range of several special status animals, most importantly bighorn sheep and burro deer. Impacts will be greatest where burros drift out of the HMA or when numbers exceed carrying capacity prior to removal. The Piute Mountain HMA would be new; burros that drift into the nearby Old Woman Mountains could affect bighorn sheep there.

CUMULATIVE IMPACTS
Cumulative impacts are similar to those discussed under the Preferred Alternative.

4.4.6 Wilderness Management

From Issue 1: Standards and Guidelines
Managing ecosystem health in accordance with Regional Standards, which pertain to soils, riparian and wetland areas, stream function, native species, and water and air quality, and managing grazing activities in accordance with the specified regional guidelines would benefit wilderness resources in the same manner as described for the No Action Alternative (see *Issue 1*, section 4.1.6).

From Issue 2: Recovery of the Desert Tortoise
None of the actions specific to recovery of the desert tortoise as proposed in the NECO Plan under this alternative are anticipated to adversely affect wilderness resources. Where the Chemehuevi and Chuckwalla DWMAs overlap designated wilderness, the effects of actions designed to maintain or enhance tortoise populations as proposed under this alternative would likely benefit wilderness resources to the degree that natural conditions would be preserved, and plant and animal diversity would be protected. Site-specific projects to facilitate recovery of the desert tortoise would require separate environmental review, including a "minimum tool analysis" which specifies the manner in which projects are to be completed. Projects not conforming with provisions of the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans would not be allowed.

If a lessee voluntarily relinquishes all grazing use authorizations and no other grazing authorizations are approved for the Lazy Daisy and Chemehuevi Allotments, the effects would be the same as those described for the Preferred/Large DWMA Alternative (see *Issue 2*, section 4.2.6).

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
The effects of actions in wilderness that maintain or enhance populations of special status animals and plants and preserve or restore natural communities would be the same as those described for the Preferred/Large DWMA Alternative (see *Issue 3*, section 4.2.6), *except* relative to the development of new guzzlers in wilderness to ensure long-term viability of the Sonoran Desert Bighorn Sheep Metapopulation. Under this alternative, it is proposed that all new water developments to expand usable habitat in the Sonoran Desert Bighorn Sheep Metapopulation

WHMA be constructed outside wilderness. The natural character of the wilderness landscape would therefore not be affected, and opportunities for solitude or a primitive and unconfined type of recreation would not be constrained by the project. However, to the extent that the metapopulation of bighorn sheep would be diminished in wilderness areas by lack of water developments, a concomitant diminishing of the area's value for wildlife would occur.

From Issue 4: Wild Horses and Burros
Combining the Chemehuevi and Havasu HAs and HMAs into one HA and HMA would integrate substantially larger portions of the Chemehuevi Mountains and Whipple Mountains Wildernesses into an area managed for retention of burros than under current management. Combining the Picacho, Chocolate/Mule Mountains HA, historic burro range, and Cibola/Trigo HA and HMAs into one HA and HMA would integrate substantially larger portions of the Indian Pass, Picacho Peak, and Little Picacho Peak Wildernesses into an area managed for retention of burros than under current management. Most of the Palo Verde Mountains Wilderness occurs within the existing and proposed HMA. The Piute Mountain HMA would incorporate most of the Piute Mountains Wilderness. As wild horses and burros are considered an integral part of the natural system of the public lands in areas where found, impacts to the natural conditions of these wilderness areas are acceptable if herd numbers are managed in accordance with the established AML and approved management plans.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Whereas motorized vehicles are prohibited in wilderness except as authorized by the Wilderness Act of 1964, the California Desert Protection Act of 1994, and approved wilderness management plans, the extent to which unacceptable impacts to wilderness resources occur consequent to motorized-vehicle travel is proportional to the manner and degree of *unauthorized* incursions into wilderness areas. Motorized-vehicle access to wilderness boundaries within DWMAs and concomitant impacts to wilderness resources consequent to such access would be the same as described for the Small DWMA "A" Alternative (see *Issue 5*, section 4.3.6). Outside DWMAs, access to wilderness boundaries would be somewhat increased with use being allowed on "redundant" routes. As opportunities for access to wilderness boundaries are increased, the potential for unauthorized incursions into wilderness is concomitantly greater. The extent to which such incursions are anticipated is undetermined.

Relative to competitive off-highway vehicle events, the effects would be the same as described under the Preferred/Large DWMA Alternative (see *Issue 5*, section 4.2.6).

From Issue 6: Land Ownership Pattern
Effects on wilderness resources consequent to acquisition of inholdings would be the same as described under the No Action Alternative (see *Issue 6*, section 4.1.6).

CUMULATIVE IMPACTS
No new impacts to wilderness resources are anticipated from actions proposed under this alternative. It is expected that visitation to wilderness areas in the NECO Planning Area will remain low. The cumulative effects, therefore, are consistent with those described for the No Action Alternative.

4.4.7 Livestock Grazing Management

From Issue 1: Standards and Guidelines
Impacts associated with adoption of the regional standards and guidelines are similar to the No Action Alternative.

From Issue 2: Recovery of the Desert Tortoise
There would be an estimated 37 percent reduction of perennial forage in the Lazy Daisy allotment. A 37 percent reduction subtracted from an estimated 1,915 AUMs available for grazing use in the DWMA would reduce grazing use by 709 AUMs. This reduction of grazing use in the DWMA would leave 2,483 AUMs or 207 cattle for year-long grazing use. This is a 22 percent reduction in cattle use. This is a significant and adverse consequence to the lessee.

The Chemehuevi allotment is reduced by 27 percent of ephemeral forage, which reduces the AUM by (*). A grazing strategy could directly affect year-long grazing operations about four out of ten years.

Construction of range improvements following this alternative would be the least costly of all alternatives. There are several proposed range improvements for the Lazy Daisy Allotment consisting of 5½ miles of fence, one cattleguard, four water sites, six water facilities with four miles of pipe, and three corrals. The total cost for all of the improvements under this alternative would be $62,960. These improvements would mostly be completed during short-term. All existing and new cattleguards would be modified and built to prevent entrapment of desert tortoises.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Impacts are the same as the Preferred Alternative.

4.4.8 Wild Horses and Burro Management

From Issue 1: Standards and Guidelines
Same as the Preferred/Large DWMA Alternative except that the area of management complexity and potential impacts to burros is greater.

From Issue 2: Recovery of the Desert Tortoise
Same as the Preferred/Large DWMA Alternative except that 1) a portion of the Chemehuevi grazing allotment would remain and periodic competition between cattle and burros would continue, and 2) long-term impacts to the Piute Mountain HMA could occur as a result of monitoring.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
The size of the Chemehuevi HMA is 54% of original (i.e., in the No Action Alternative), while the AML is unchanged. Both the size of the Chocolate/Mule Mountain HMA and its AML are 65% of original.

As in the Preferred/Large DWMA Alternative, removal of HMA designation from national wildlife refuges (NWRs) managed by USFWS and from Picacho State Recreation Area (SRA) and from other areas with species/habitat values (including tortoise) greatly enhances these entities to meet their management mandates and reduce impacts to valuable habitats and facilities. However, the complexity of mixed agencies and mandates is more complex and difficult with additional HMAs alongside the Havasu NWR and private fields in the irrigated Palo Verde Valley. Other effects described in the Preferred/Large DWMA Alternative also apply the following exceptions:

1. Competition with bighorn sheep demes would increase for the Palo Verde Mountains, but decrease in the Cargo Muchahco Mountains areas.
2. Management costs (e.g., facilities, monitoring) and residual impacts would be greater with the increased size of HMAs

From Issue 4: Wild Horses and Burros
HMA and animal numbers reductions relative to the No Action Alternative are noted above. Elimination of the Picacho horse HMA would have no significance since any horses that may have once been in the area naturally left many years ago. Other effects are the same as described in the Preferred/Large DWMA Alternative with the following exceptions:

- Management costs (e.g., facilities, monitoring) and residual impacts would be greater with the increased size of HMAs
- A Piute HMA is established reversing to a small extent the regional decline of burro HMAs. 50 animals is considered the minimum level for genetic viability. With the proposed herd set initially at 37, maintaining its genetic viability may require periodic management support (outside introductions).

CUMULATIVE IMPACTS
Cumulative impact to burros would include information described in the No Action Alternative, however the boundaries of the Chocolate/Mule Mountains and the Chemehuevi HMAs change to reflect the recommendations of the Pierson Report and the Piute Mountain HMA is established. All three HMAs will be managed for wild burros which will allow an increased representation of this species in the California Desert Conservation Area. The Piute Mountain HMA overlaps critical tortoise habitat which will be subject to biological evaluations, assessments, and opinions regarding the recovery of the desert tortoise. Regional rangeland standards would be incorporated into the HMAPs.

4.4.9 Recreation Management

From Issue 1: Standards and Guidelines
Managing ecosystem health in accordance with Regional Standards and managing grazing activities in accordance with the specified regional guidelines would result in the same effects as discussed for the No Action Alternative relative to National Fallback Standards and guidelines (see *Issue 1*, section 4.1.9).

From Issue 2: Recovery of the Desert Tortoise
The discussion for the Preferred/Large DWMA Alternative about routes of travel designations and their impacts to recreational opportunities is applicable to this alternative (see *Issue 2*, section 4.2.9).

Limiting stopping, parking, and vehicle camping to within 300 feet of route centerline in DWMAs enhances opportunities for these activities. Currently, stopping, parking, and vehicle camping is allowed within 300 feet of routes, *except* in sensitive areas such as ACECs where the 1980 CDCA

Plan limit of 100 feet applies. Where DWMAs are coincident with ACECs, the increased allowance would facilitate camping by larger groups in particular (see discussion for the No Action Alternative [*Issue 2*, section 4.1.9] about the impacts of smaller camping zones).

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Under this alternative, impacts to recreation would be the same as discussed for the Preferred/Large DWMA Alternative (see *Issue 3*, section 4.2.9).

From Issue 4: Wild Horses and Burros
Actions proposed under this alternative are not anticipated to affect opportunities for recreation.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Managing motorized-vehicle access in accordance with MUC guidelines established in the CDCA Plan, as amended, would generally affect opportunities for recreation in the same manner as described under *Issues 2* and *3*, section 4.2.9 (Preferred/Large DWMA Alternative), *except* within DWMAs where impacts to recreation would be the same as described under *Issue 5*, section 4.3.9 (Small DWMA "A" Alternative).

Allowing motorized-vehicle use of "redundant" routes outside DWMAs would not affect opportunities for recreation to any appreciable degree, whether in a beneficial or adverse manner. By definition, a redundant route is one deemed *more than is necessary*, whose purpose is apparently the same or very similar to that of another route, inclusive of providing the same or very similar recreational opportunities or experiences. Therefore, it can be anticipated that use of such routes would occur infrequently as routes that provide the same recreational opportunities would already be available for use.

Elimination of the *Parker 400* corridor would result in no adverse impacts to recreational opportunities. It has been a decade since the *Parker 400* event last occurred in California; interest in reestablishing the event on the California loop is no longer being expressed. The *Parker 400* event now occurs entirely in Arizona.

The limitations under this alternative are slightly less restrictive than those under the Preferred/Large DWMA Alternative for organized competitive vehicle events within the *Johnson Valley to Parker* corridor and in accordance with MUC guidelines outside the corridor. Impacts to recreational opportunities would therefore be essentially the same as described for the Preferred/Large DWMA Alternative (see *Issue 5*, section 4.2.9).

Modification of the "300-foot rule" for stopping, parking, and vehicle camping outside DWMAs such that the 300-foot distance is measured from a route's centerline instead of its edge would not substantially affect opportunities for these activities.

From Issue 6: Land Ownership Pattern
Actions proposed under this alternative are not anticipated to affect opportunities for recreation (see discussion for the No Action Alternative: *Issue 6*, section 4.1.9).

CUMULATIVE IMPACTS
Cumulative effects on recreation would generally be the same as those described for the Preferred/Large DWMA Alternative. Opportunities for stopping, parking, and vehicle camping

are increased with establishment of the "300-foot rule" in DWMAs, and the number of participants allowed in off-highway vehicle races is increased, but these changes are not considered substantial.

4.4.10 Motor Vehicle Access

From Issue 1: Standards and Guidelines
The effects on motorized-vehicle access consequent to managing ecosystem health in accordance with Regional Standards and managing grazing activities in accordance with the specified regional guidelines would be the same as described for the No Action Alternative relative to National Fallback Standards and guidelines (see *Issue 1*, section 4.1.10).

From Issue 2: Recovery of the Desert Tortoise
Under this alternative, impacts to motorized-vehicle access would be the same as discussed for the Preferred/Large DWMA Alternative (see *Issue 2*, section 4.2.10).

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Under this alternative, impacts to motorized-vehicle access would be the same as discussed for the Preferred/Large DWMA Alternative (see *Issue 3*, section 4.2.10).

From Issue 4: Wild Horses and Burros
Actions proposed under this alternative are not anticipated to affect motorized-vehicle access.

From Issue 5: Motorized-Vehicle Access/Routes of Travel Designations/Recreation
Under this alternative, impacts ro motorized-vehicle access would be the same as discussed for the Small DWMA "A" Alternative (see *Issue 5*, section 4.3.10).

From Issue 6: Land Ownership Pattern
Under this alternative, impacts to motorized-vehicle access would be the same as discussed for the No Action Alternative (see *Issue 6*, section 4.1.10).

CUMULATIVE IMPACTS
Motorized-vehicle access and opportunities for recreation are closely linked in the California desert. The cumulative effects on motorized-vehicle access under this alternative, therefore, are the same as described in the section entitled "Recreation Management" for the Small DWMA "B" Alternative.

4.4.11 Mineral Management

The following affects are additional or change to affects described in the Small DWMA A Alternative. No attempt is made to quantify the number people, companies or operations affected by the following.

From Issue 1: Standards and Guidelines
There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.

From Issue 2: Recovery of the Desert Tortoise
There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.

From Issue 3: Management of Special Status Animals and Plants and Natural Communities
Fewer acres would be There would be less additional mitigation, compensation, and reclamation requirements and costs to those already in place.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation
Access in DWMAs would be considerably more reduced, having a greater affect on casual mining activity and creating more instances of access authorizations; however, outside DWMAs access network would increase to nearly the extent of the No Action Alternative and reduce the need for access authorizations.

From Issue 6: Land Ownership Pattern
There would be no essential change from the Preferred Alternative except that acquisitions/ownership consolidations would cover less area (50% conservation zone goal).

CUMULATIVE IMPACTS
Mining operations would be less effected by the (reduced acres) DWMA and WHMA designations.

4.4.12 Cultural Management

From Issue 1: Standards and Guidelines
Same as the No-Action Alternative except that under that Regional Standards for Public Land Health are applied and the described benefits would extend throughout the planning area.

From Issue 2: Recovery of the Desert Tortoise
The Small DWMA A alternative will designate DWMAs the same as the Preferred. Cumulative new surface disturbance on Federal and State administered lands will be limited to 3 percent of the Federal/State proportion of the DWMA. This action should result in greater protection and preservation of cultural resources within the DWMA boundaries, although not to the extent of the Preferred alternative. All other analysis remains the same as the Preferred alternative.

Grazing Management
In the Small DWMA B alternative, current range management practices will continue. Livestock can adversely effect cultural resources, including historic structures, archaeological sites and historic landscapes. The primary impact, however, is damage to artifacts and site integrity resulting from breakage, chipping, horizontal movement, and vertical displacement of artifacts, which generally compromises the information potential about discrete utilization areas of a site. Grazing impacts are greatest in areas where cattle congregate around springs, water courses, troughs, shade zones, and salt licks.

Approximately 140,357 acres of the Lazy Daisy cattle allotment will be eliminated. The analysis is the same as the Small DWMA A alternative.

The Chemehuevi Grazing Allotment will be reduced by 36,480 acres. This will have a positive benefit for cultural resources by reducing the threats from grazing to recorded and unrecorded sites. Currently there are 55 recorded resources within the existing allotment boundary (Table 4-9). Only 30 sites would remain within the reduced allotment boundaries in this alternative.

Management policy will continue to be to analyze effects to cultural resources from grazing during the NEPA review of rangeland lease renewals and would continue in the Small DWMA B alternative. New range improvements will continue to be reviewed under Section 106 at the time they are proposed.

From Issue 3: Management of Special Status Animals and Plants and Natural Communties
Same as Preferred Alternative.

From Issue 4: Wild Horses and Burros
Analysis is the same as the No-Action alternative. Under the Small DWMA B Alternative, Herd Areas and Herd Management Areas are combined and reduced in size to 537,830 acres and the Piute Mountain HMA is established at 39,780 acres. Herd populations will managed at existing levels. There are no specific on-the-ground actions proposed in this plan for this alternative. Specific actions that are carried out to meet the standards may satisfy the definition of an "undertaking", such as placement of protective exclosures, water troughs, gathering traps, or other ground disturbing activities, and may have the potential to affect historic properties. Those actions will be reviewed in accordance with Section 106 of the NHPA during the course of normal NEPA review at the time they are proposed.

The Preferred alternative would remove 498,050 acres from management for Wild Horse and Burro herds. This would result in a positive benefit to cultural resources by reducing the number of known sites subject to impact from herd behavior by 413 sites. There 402 recorded cultural resources identified within the boundaries of the HMAs for this alternative (Table 4-10).

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations
Analysis is the same as the No-Action alternative (see Table 4-11), and is the same situation inside DWMAs as for the Small DWMA Alternative.

Under the Small DWMA B Alternative, 554 cultural resources have been identified as located on BLM managed lands and falling within the 600' APE for routes that are under review for "open"designation inside and outside DWMAs (Table 4-11). Of these, 184 sites have either been listed, determined eligible, or are considered likely to be eligible and 167 of these sites are considered to have qualities and values that might be adversely affected by activities authorized within the APE of a route. In this alternative, 284 route segments have been identified has having potential conflicts with cultural resources. These segments will not be designated either "open" or "closed" pending a physical assessment of the sites and evaluation of threat that proximity to an open route might pose. If it is determined that these routes may have or have had an adverse effect on historic properties, BLM will close these routes or will consult with SHPO on the appropriate course of action to resolve the effect.

Competitive Off-Highway Vehicle Events
Analysis and impacts are the same as the Preferred alternative.

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From Issue 6: Land Ownership Pattern
Same as No-Action Alternative.

From Issue 7: Access to Resources for Economic and Social Needs
Same as No-Action Alternative.

From Issue 8: Incorporation of Wilderness Areas into CDCA Plan
Same as No-Action Alternative.

Cumulative Impacts
In the Small DWMA B alternative, there would be a net indirect benefit to the protection, preservation, and management of cultural resources from the adoption of Regional Standards and Guidelines for rangeland health. There will be a direct benefit to cultural resources by reducing the area of the Lazy Daisy and Chemehuevi range allotments, as well as the size of Herd Management Areas. There will be further benefit in changing MUC classifications from M to L, as well as limiting cumulative surface disturbance within DWMAs to three percent. There will also be a direct benefit to cultural resources by reducing the length and scale of competitive race corridors.

4.4.13 Lands and Land Use Authorization

The following affects are additional or change to affects described in the Small DWMA A Alternative. No attempt is made to quantify the number people, companies or operations affected by the following.

From Issue 1: Standards and Guidelines
There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place.

From Issue 2: Recovery of the Desert Tortoise
There would be no additional mitigation, compensation, and reclamation requirements and costs to those already in place. A 3% surface disturbance limit would result in fewer negative discretionary decisions for Lands actions requests over time or that the threshold would actually be reached.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
Fewer acres would be included in WHMAs so there would be less additional mitigation, compensation, and reclamation requirements implications.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation
While access in DWMAs would be considerably more reduced, the access network outside DWMAs would be increased to nearly the same network as in the No Action Alternative. This could possibly reduce the need for access authorizations to private lands.

From Issue 6: Land Ownership Pattern
There would be no essential change except that the acquisitions/ownership consolidations target area is reduced (50% conservation zone goal) as shown on Table 4-23.

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CUMULATIVE IMPACTS
Cumulative impacts would be little changed, except for the 3% surface disturbance threshold in DWMAs and fewer acres of WHMAs.

4.4.14 Socio-Economic

From Issue 1: Standards and Guidelines
Impacts would be similar to the No Action Alternative for grazing allotments. Implementation of regional standards may increase costs associated with continued use of the lease and addition and maintenance of range improvements.

Impacts to the public and surrounding communities are indirect and are generally minor, both locally and regionally. In the long-term, public lands, which meet standards, is a benefit, both for local communities and for regional tourism.

From Issue 2: Recovery of the Desert Tortoise
Reducing the Lazy Daisy allotment by 42% causes a 20 percent loss in grazing use (266 cattle to 213). This is a significant and adverse loss of revenue to the lessee. There would be a substantial short-term and long-term loss of management flexibility with cattle operation with so much area excluded from future use.

Reducing the Chemehuevi allotment by 37 percent would not be a loss of perennial AUMs because this is an ephemeral allotment, there would be substantial impact to management flexibility. The consequence of this reduction would make the grazing season so short and cattle numbers so low that economic benefits would be marginal.

Construction of range improvements according to this alternative would be the least costly of all alternatives. Range improvements are not proposed for Rice Valley Allotment. There are many proposed range improvements for the Lazy Daisy Allotment consisting of 5½ miles of fence, one cattleguard, four water sites, six water facilities with four miles of pipe, and three corrals. The total cost for all of the improvements under this alternative would be $62,960. These improvements would primarily be completed during short-term. All existing and new cattleguards would be modified or built to prevent entrapment of desert tortoises.

The proposed tortoise fencing is several magnitudes less than in either the Preferred or Small DWMA A alternatives. With only a 3% limit on surface disturbance more disturbance could occur and with emphasis on effective rehabilitation. The magnitude and effects of routes of travel designations in DWMAs is about the same as in the Small DWMA A Alternative.

From Issue 3: Management of Special Status Animals and Plants and Natural communities
The cost of compensation and mitigation for other species would be less in the alternative because the amount of multi-species WHMA is less. Only Ford Dry Lake Grazing lease is completely eliminated.

From Issue 5: Motorized Vehicle Access/Routes of Travel Designations/Recreation
Fewer routes would be closed and there is a greater opportunity for competitive racing.

From Issue 6: Land Ownership Pattern

Same as Small DWMA A but fewer acres to acquire.

CUMULATIVE IMPACTS

Overall this alternative carries the least social and economic costs of all alternatives. Mitigation, compensation, disturbance limits, highway fencing, grazing allotments reduction, routes/race routes closed (acres and amounts) are all fewer. On the matter of highway fencing the cost is several magnitudes less.

Chapter 5 Monitoring

The following represents an integration of ideas from many sources for a long-term monitoring program. The array of items is not necessarily exhaustive nor complete and will change over time. It is not particular to any one alternative. As with plan implementation, this subject is informational in nature and is not a proposed decision. There are many reasons for this, two of which are that 1) agencies cannot make land use decisions which carry fiscal commitments beyond the current budget year and 2) priorities are subject to change. However, identified monitoring does generally reflect implementation responsibilities and priorities and is extremely vital to long-term management.

The subject presents a conundrum: it is essential that monitoring occur so that plans and management can adapt to new information and changing landscapes. Monitoring:

- is expensive and often not implemented in land management due to budget constraint
- if not accomplished risks species and habitat losses and future, more difficult use restrictions and species listings under state and federal endangered species acts
- will compete with similar needs in other areas with greater resource issues
- if not implemented for listed species risks a USFWS jeopardy opinion on the Plan

In spite of these issues an ambitious strategy for monitoring is presented below.

Purpose
There are two elements to this chapter:

- define the conceptual framework for monitoring - nature and scope
- define what is to be monitored - array and priorities

Why monitor?
Perhaps the main purpose of monitoring is to maintain the pulse of ecosystem health:

1. Early Warning. To detect early signs of ecosystem change, to assess ecosystem health and trend, to determine if the specific and arrayed decisions that we have been are correct and effective given defined goals for ecosystem health. This is the essence of the NPS "Vital Signs" and BLM's Standards for Rangeland Health programs.
2. Compliance. To determine if management programs are meeting specific, issue-driven requirements of such matters as difficult plan decisions, endangered species acts, and biological opinions.
3. Diagnosis. To assess the results of a specific management decision/use authorization to determine if the authorization is being conducted in the manner prescribed or anticipated. This may include such activities as moving cattle from one part of a lease to another, a footprint of disturbance for a pipeline, level of use on a route of travel, and disturbance rehabilitation.

Scope for NECO
Under the general heading of "monitoring" information gathering is expanded to include:

- Monitoring ecosystem health (noted above)
- Resource inventory/New information. The collection of additional or new data to improve the data bases and models upon which the plan and management are based. Most species and habitat decisions are based in models: predictive occurrence and species-habitat values. For some species in some areas it may be necessary over time that we rely less on models and more on known data.
- Research. This is similar to monitoring in terms of application of scientific method.

Monitoring tells us "what" is occurring; research explains "why".

- Occurrence and nature of uses. This includes collecting information (nature and location) on casual and authorized uses such as driving on roads and in washes, cattle operations, and mining and rights-of-way. Information is used to update the assessment of the reasonable foreseeable future and can better direct and interpret monitoring and research tasks.

Tracking of other plan implementation tasks (e.g., tortoise fencing, land acquisitions) is not included as monitoring but is included in the implementation plan section.

One-time, Continuous, Sequential actions and Priorities

Additional general considerations include:

- some monitoring and research may be sequential - i.e., initial monitoring efforts may lead to subsequent efforts. The results from early/initial efforts may suggest either no additional monitoring is needed or subsequent effort is needed. In other words not all efforts can be foreseen and some efforts may be a waste of time and funding because it might turn out that they are not needed. So, subsequent steps from an initial monitoring action may lead to continuation or new monitoring, to research, or to adaptive management.
- some tasks are continuous, at least for a very long time - e.g., use authorizations, desert tortoise and bighorn sheep populations trends.
- not all tasks can be funded at one time and require prioritization; all will be grouped into 3 priority bands: Continuous, High (near-term), and Low (long-term)
- some low priority tasks may never be accomplished because it may turn out that they are not needed or that they never become a high enough priority.
- inventories to improve data bases will tend to be lower priority than monitoring. To expand on this, in NECO much of the basis for decisions is models of the relationship of species and habitats and levels of use. Given the relatively low level of uses in the NECO planning area, we assume the models are sufficient in sophistication and quality to serve well. In the future, if changing use levels occur and/or monitoring suggests that species are in decline, a higher emphasis on inventories may be necessary.
- few research needs are identified at this time. More will come to light as monitoring results are evaluated.

Long list v Short list

Monitoring is expensive. "Enough funding" never happens, so one can argue that a monitoring program should be conservative (a short list) to avoid set up to fail. In spite of this we are proposing a long, broad list of tasks for the following reasons:

- Given the (new) cooperative nature of the plan, there are a number of agencies and non-agency interest groups that together offer greater capability and variety of funding mechanisms than with single-agency planning in the past. Each brings similar and different interests which together covers a wide variety of topics.
- Grant funding offers greater opportunities than in the past.
- Management and monitoring are a long-term continuum. If it takes 100 years to accomplish the monitoring tasks, so be it.
- A list will be annually reviewed and prioritized.

Local v. Regional Considerations, Assignments, and Expertise

The roles of NECO cooperators, the Desert Managers Group, USGS BRD, academia, and interest groups such as the California Native Plant Society and Desert Wildlife Unlimited expand cooperative opportunities but this many entities performing monitoring can also create confusion and conflict that must be managed.

- NECO Cooperators will attempt to develop a clear and complete a list of monitoring and related needs with the above discussion in mind and annually seek funding and grants to accomplish it. Within the NECO group agreements will have to be reached to divide the work. NECO managers will meet on a regular basis to do discuss, review progress, and update commitments. NECO cooperators will attempt to accomplish as much as it can, but help may be sought from the following groups.
- Desert Managers Group (DMG) will develop its monitoring and research efforts with a regional perspective. Concerns that the NECO cooperators may have about funding, methodologies, and other matters may also be advanced to the DMG for help and lead. The DMG can serve as a positive force for technical expertise, funding, and priorities setting.
- USGS-BRD and academic institutions can make significant contributions through research and expertise such as advising on methodologies. USGS-BRD is the official Department of Interior research body and should contribute significantly to NECO research needs. University of California, Riverside Center for Conservation Biology and the Desert Studies Consortium should be encouraged to direct projects and research of students and from interest around the world to desert needs.
- Plan-plan coordination is a concern. Cooperators for each major planning effort, with help from the DMG, should assure consistency among plans for tasks, common resource values, priorities, methodologies, etc.

Scientific method
With the importance placed on this subject, new information that is developed from monitoring, inventories, and research must pass a test of confidence - basically must conform to the scientific method - prior to being added to data bases.

1. For monitoring, new inventories, and research, this will/may include:
    - literature review
    - concurrence on design, statistics, conclusions
    - methods are verifiable and repeatable

2. For statistics and trends on uses, this will/may include:
    - same criteria as above, except
    - information sources may not involve field work as much as gathering of statistics and mapped information in agency records and files

Monitoring Tables and Specific Programs
The following set of tables display an array of needed/suggested work by habitat, species or species group. Each is further defined by priority and task category: monitoring (M), resource inventory (I), research (R).

Table #	Topic
5-1	General Monitoring of Ecosystem Health
5-2	Desert Tortoise
5-3	Bighorn Sheep and Mule Deer
5-4	Other Special Status Species
5-5	Burros
5-6	Occurrence of Uses - DWMAs

5-7 Occurrence of Uses - WHMAs
5-8 Habitat-Species specific

From the many items which appear on the tables which follow, a few emerge as the top priorities:

- Alien plants: distribution, trend, causes of spread
- Desert Tortoise: populations and trends
- Desert Tortoise: disease and other causes of populations decline
- Desert Tortoise (also Bighorn Sheep, other Special Status Species, adjacent habitat): effects of artificial waters
- Desert Tortoise and Bighorn Sheep: cattle operations and implementation of Guidelines
- Coachella Valley milkvetch: known populations
- Bighorn Sheep: populations and trends, deme demographics
- Bighorn Sheep, Habitat: habitat trend in/out burro herd management areas
- Some (rare/most sensitive)other Special Status Species: populations and trends
- Habitats (general): restoration technology and management
- Burros: occurrence and population levels
- Springs and Seeps: water production trends, tamarisk invasion
- Uses: vehicle use in washes, tracking various authorized uses

Research Natural Areas (RNAs)

It is BLM policy that RNAs be created to provide for non-manipulative baseline research on representative areas of relatively unaltered ecosystems. The basis for designation is plant communities as recognized in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995). Achieving representation of all plant communities throughout California is a long-term, multi-agency goal that may take years to accomplish. RNAs are not uncommon to state and federal agencies.

The premise behind the policy is that many plant communities are actively managed in a disturbed condition but it is impossible to scientifically manage them as such without baseline information and control areas. RNAs would provide the baseline/control. RNAs would not necessarily serve all research needs nor would all research be specifically assigned to RNAs. They can greatly help to attract relevant research to the desert.

Because of the complexity of plant communities and management issues involved with establishing RNAs, it makes sense to establish a set for the California Desert at one time so that they best capture the spread of plant communities, and needs/issues of all agencies. Establishing a set of RNAs was an action consideration in this planning process, but it is now deferred to a desert-wide initiative.

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Table 5-1 Monitoring for General Ecosystem Health

M/Continuous	Are Standards being met? See Section 2.1 on Standards & Guidelines and indicators. See next set of tables for specific species needs.	Set and read transects	BLM, NPS, USMC
M/Continuous	What is the trend in human disturbance by plant community?		BLM, NPS, USMC
R/High	Alien plants. What is the trend in occurrence by plant community? How are their distribution affected by air pollutants, use of routes of travel and washes, and fire occurrence? To what extent are they displacing native species?		USGS, CNPS

Table 5-2 Monitoring for Desert Tortoise

M/Continuous	What is the population trend?	Line-distance monitoring	BLM, NPS, USMC
M/Low	Population. What is the trend in population demographics?	Permanent study plots	BLM, NPS, USMC
M/Low	Ravens. What is the trend in raven population and tortoise predation by ravens?	Ravens monitoring	BLM, NPS, USMC
I/Low	Tortoise numbers. What is the current distribution and numbers for populations given recent years of decline?	Re-inventory desert tortoise	BLM, NPS, USMC
R/High	Disease. What do we need to know about tortoise diseases that can help in land management?	Epidemiology of upper respiratory tract and shell diseases in wild populations. Relationship between environmental toxicants and tortoise health	USGS
R/High R/Low	If populations are not increasing as should, what is/are the cause(s)?	Validate line-distance-sampling technique. Demography and mortality in tortoise populations.	USGS
R/Low	Where the occurrence of chronic unauthorized use is deemed to be significant (e.g., a high amount over a large area) what is the nature of tortoise mortality?	Effects of illegal alien travel, OHV uses, Border Patrol interdiction activities (mostly relates to Eastern Colorado Desert Recovery Unit)	USGS

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Type/Priority	[illegible]	Task Name	[illegible]
R/Low	Recolonization. What is the trend of habitat and tortoise recolonization in areas adjacent to highway fencing?	Effectiveness of barrier fences and culverts in recovery of local populations.	USGS
R/High	Alien plants/Wildland fire. How do occurrence and trend in alien plants and wildland fires influence populations?	Ecological relationship between wildland fires and alien plant invasion and tortoise distribution	USGS
R/Low R/Low R/Low R/Low M/High	How do various land uses and predation effect tortoise populations? e.g.,	Vehicle use on approved routes of travel, in washes (mainly in Eastern Colorado Desert Recovery Unit) Effects of cattle grazing on desert tortoise populations in Northern Colorado Desert Recovery Unit. Ecology of raven predation on desert tortoises To various land uses: general, physiology, and reproductive behavior. Animal guzzlers: direct (entrapment) and indirect (predator dynamics). Animal guzzlers: habitat degradation	USGS
R/Low	Other	Geographic variation and environmental determinants of reproduction. Ecology of hatchling and juvenile desert tortoises Population response to habitat restoration (including from fires and mechanical disturbance).	USGS
R/Low	Population Trend. Can population trend be correlated to areas of low or high use - public lands, private lands, cattle, burros? To weather, forage change from weeds, disease, barriers, seasonal weather?	Various research projects involved	USGS

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Table 5-3 Monitoring for Bighorn Sheep and Desert Mule Deer

[illegible]	[illegible]	[illegible]	[illegible]
M/Continuous	Population. What is the trend in population for each metapopulation?	Annual counts	CDFG
M/Low	Deaths. Which deaths are natural, unnatural?		CDFG
M/High	Demographics. What is the population demographics by deme and metapopulation?		CDFG
	Guzzlers. What is the relative sheep use? How well do drinkers fill and provide water? How well do they function re vandalism and natural catastrophes?		CDFG
	Forage. What is the utilization?		CDFG, BLM, NPS, USMC
	Deme augmentation/reestablishment. What are the results of either action?		CDFG
	Deer hunting. What was the take for the previous season?		CDFG
Low	Cattle. Is cattle grazing in bighorn sheep range creating significant negative affects for bighorn sheep - disease, forage, water?		CDFG
(if occurs)	Domestic Sheep. Is the proximity of domestic and native sheep causing a decline in native sheep?		CDFG, BLM
Low	Forage and water. What is the relationship of forage utilization and water distribution?		CDFG

Table 5-4 Monitoring for Other Special Status Species

Type/Priority	Topic and question to Answer	Task Name	Agency/Interest
M/High-Low	Population trend. What is the population trend for the special status species? Monitoring priority may be commensurate with sensitivity, abundance, gap analysis, threats, etc.		CDFG, BLM, NPS, USMC, CNPS
I/Low	Accuracy/confidence of predictive occurrence models. Can models be assessed for accuracy?		USGS, CDFG

I/Low	Vegetation map. Can this coverage be improved - i.e., capture variation in scale, latitude, elevation, rainfall pattern, other?		USGS, CDFG, BLM, NPS, USMC, CNPS
I/High-Low	Known occurrence of species. Can the ranges of special status species be determined directly through field investigation and reduce or eliminate the reliance upon models? Inventories may not be equally applied depending upon sensitivity, current abundance, gap analysis, threats, etc.		USGS, CDFG, BLM, NPS, USMC, CNPS
I/Low	Habitat value/predictive occurrence. Can habitat descriptions and values be further defined - e.g., functions (watering, mating, rearing young, seasonal), human use, cattle/burro use, ecological process functions, and species abundance - and better improve models of predictive occurrence, function, value?		USGS, CDFG
I/Low	Life histories. Can life histories be improved?		USGS, CDFG
I/Low	Physical data. Can a soils, rainfall, etc. maps be developed and be used to update models?		USGS
I/High	Restoration. What best restoration practices can be applied for rehabilitation of disturbed sites?		USGS, CDFG
R/Low	Trend explanation-miscellaneous. Can the trend be correlated to areas of low or high use - public lands, private lands, cattle, burros, disease, guzzlers, habitat change (weeds), climate-weather cycles?		USGS, CDFG
R/Low	Ecological processes. Does analysis of data suggest disruption of ecological processes?		USGS, CDFG
R/Low	Trend explanation-patch size. Does analysis of data suggest basis in patch patterns and sizes?		USGS, CDFG
R/Low	Patch size. How does biodiversity vary with patch size?		USGS, CDFG
R/Low	Predictive occurrence of rare plants. What are the habitat parameters for predictive occurrence for some rare plants?		USGS, CDFG, CNPS

Table 5-5 Monitoring for Burros

M/High	Census. What is the census for each herd?		BLM (Colorado River cooperators)
M/High	Use occurrence. Where are burros using habitat in/out of HMA? Burros. Is there chronic, significant burro drift into DWMAs, other non-HMA areas?		BLM (Colorado River cooperators)
M/High	Forage utilization. What is the forage utilization in their range of occurrence?		BLM (Colorado River cooperators)
M/Low	Disturbance. Is burro use disturbing cultural sites (trails, dusting areas), management facilities, on private lands?		BLM (Colorado River cooperators)
R/Low	Competition. Is there a burros-bighorn sheep/deer nexus regarding trends, forage/water utilization?		CDFG/BLM

Table 5-6 Continuous Monitoring of Use Occurrence - DWMAs (by DWMA)

[illegible]	[illegible]
Disturbance. What is the cumulative disturbance by authorized/unauthorized use by DWMA, adjusted for completed restoration?	BLM, NPS, USMC
Restoration. What is the progress on/completion of restoration of disturbed areas?	BLM, NPS, USMC
Private land use. What is the trend in development of private lands?	BLM
Unauthorized disturbance. What is the trend (location, nature) of chronic unauthorized disturbance?	BLM, NPS, USMC
Vehicle use. What is the relative use by vehicles of roads and washes, further defined by area, time of year?	BLM, NPS, USMC
Wildland fires. What was the fire history for previous years? What is the trend in fire history? Has guidance on fire suppression been followed? Are available suppression resources/response times adequate?	BLM, NPS, USMC
Cattle grazing. What number of cattle were present during previous grazing year? How is the lease operation being managed - i.e., cattle # by pasture by time of year? Is the operation in compliance with Guidelines and DWMA requirements? What was the forage production in the DWMA portion of the lease?	BLM
LTA. What private/SLC lands were acquired in the last year? What are the priorities for the next year?	BLM, NPS
Plan amendments. Were any amendments proposed/approved which affected DWMAs?	BLM, NPS, USMC
Highway fencing. What is the installation progress?	BLM, CalTrans

Table 5-7 Continuous Monitoring of Use Occurrence - WHMAs

Question to Answer	Agency/[illegible]
What is the vehicle use of roads and washes in WHMAs - by area, time of year?	
Unauthorized disturbance. What is the trend (location, nature) of chronic unauthorized disturbance in WHMAs?	BLM, NPS, USMC
LTA. What private/SLC lands were acquired in the last year? What are the priorities for the next year?	
Cattle grazing. What number of cattle were present during the previous year by lease? How is the lease operation being managed - e.g., cattle # by pasture by time of year? Is the operation in compliance with Guidelines? What was the forage production in the non-DWMA portion of the lease? Where are cattle and bighorn sheep co-habiting?	
Authorized uses. What disturbance-creating uses over 100 acres were authorized in WHMAs in the last year? What is the cumulative total? With GIS calculate by habitat and species ranges.	
Domestic Sheep. Was grazing authorized in the past year? What parts of the lease were utilized? (More details - see grazing lease file)	

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Table 5-8 Habitat-Species specific monitoring, resource inventory, research needs.

Habitats				
Springs/Wetlands	High	Low	Low	What is water/habitat quality in areas of cattle/burro/bighorn sheep use? What is the capacity of tanks and production history of springs?
Desert Dry Wash Woodland	High		High	How does habitat vary naturally and from uses? What effects are uses having on tortoise, birds, plant growth, movement of water and sand?
Dunes	Low	Low		What is the sand source, sand corridor for dunes? To what degree do alien plants occur? What effects are suggested?
Playas	Low	Low		What are the sources for water and soil into playas? Does brine mining create negative effects on species and habitats?
Chenopod Scrub				
Sonoran Creosote Scrub				
Mojave Creosote Scrub				
Pinyon Pine Woodland				Amount/utilization by cattle grazing. Fire effects
Wildlife - mammals				
Bighorn Sheep			High	What are current needs and the opportunity/requirements to expand bighorn sheep between I-10 and Highway 62?
Mule deer				
CA leaf-nosed bat				What is the foraging range from hibernicula? What special habitat characteristics are required? Where are populations being displaced from uses/vandalism? What populations are in most need of monitoring? Which colonies are in mine shafts? Are these visited more/more vulnerable than natural caves/cavities?
Occult little brown bat				
Cave myotis				
Fringed myotis				

[illegible]	M	I	R	Notes
Pallid bat				
Townsend's big-eared bat				
Pocketed free-tailed bat				
Western mastiff bat				
Mountain lion				
Colorado Valley woodrat				What are the distribution, core populations, and population corridors?
Wildlife - birds				
Golden eagle				
Mountain plover				
Ferruginous hawk				
Prairie falcon				
Elf owl				
Burrowing owl				
Gila woodpecker				To the extent that species occur, are starlings impacting populations?
Vermilion flycatcher				
Bendire's thrasher				Are isolated populations breeding? What affects breeding?
Crissal thrasher				What is the distribution and size of populations?
LeConte's thrasher				
Yellow warbler				

Wildlife - reptiles/amphibians	▨	▨	▨	▨
Chuckwalla				Is the species declining in collecting areas?
Colorado Desert fringe-toed lizard				
Mojave fringe-toed lizard				
Flat-tailed horned lizard				
Desert rosy boa				Is the species declining in collecting areas?
Couch's spadefoot toad		High		Where are there more occurrences? Does the use of washes by vehicles affect occurrence?
Plants	▨	▨	▨	▨
Angel trumpet				
Coachella Valley milkvetch				
Borrego milkvetch				
Harwood's rattleweed				
Red grama				
Fairyduster				
Saguaro				
Crucifixion thorn				
Los Animas colubrina				

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Spiny abrojo				
Wiggins' croton				
Winged cryptantha				
California ditaxis				
Glandular ditaxis				
Howe's hedgehog cactus				
Foxtail cactus				
Crown-of-thorns				
Spearleaf				
Robinson's mondarella				
Munz' cholla				
Wiggins' cholla				
Giant Spanish-needle				
White-margined beardtongue				
Sand food				
Arizona pholistoma				
Lobed ground cherry				
Desert unicorn plant				
Orocopia sage				

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coues' cassia				
Mesquite nest straw				
Jackass clover				
Mecca-aster				

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Chapter 6 Implementation

The purpose of this chapter is to generally define near and long-term priorities for plan implementation for the cooperating agencies. The array of tasks does not include monitoring tasks which are addressed in Chapter 5. Only the Preferred/Large DWMA Alternative is reflected in this exercise. These priorities and time frames are not decisions as in the proposed land use and activity decisions, although some tasks carry considerable weight: e.g., terms and conditions, regulation, policy and regulation. There are many reasons for this, two of which are that 1) agencies cannot make land/activity decisions which carry fiscal commitments beyond the current budget year, and 2) priorities are subject to change. However, implementation does generally reflect commitments. Proposals that are designations or are implemented through permit consideration processes are automatic and not included here. Tasks are organized by issue subject.

General

Task	Agency/Interest	[illegible]
Amend land use plans	BLM, JTNP	1 year
Create new resources management plan. CDPA requirement	USMC, BLM	1 year.
Change Tortoise Categories, Critical Habitat	BLM, USFWS	1 year
Schedule follow-up activity planning	All	1 year
Hold implementation progress/action meetings	All. Include non-agency cooperators	Annual
Send applicable NECO map decisions, data and models coverages to NECO cooperators	BLM send to county, state, federal agencies, UC Riverside, etc.	1 year

Standards for Rangeland Health (relates to monitoring)

Task	Agency/Interest	Timeframe - [illegible]
Define assessment methods	All	BLM has completed
Complete assessments	same	See Monitoring Plan

DWMAs - General

[illegible]	[illegible]	[illegible]
Incorporate map and decisions into public maps, brochures	All	Data bases - 1 year Interim public info - 2 years Reissue public maps, brochures - develop schedule
Track 1% surface disturbance	BLM, JTNP, USMC	Annually by action
Assess disturbance rehabilitation	BLM, JTNP, USMC	By action
Sign/Fence periphery	BLM, JTNP, USMC	As needed
Notify cooperators of change in military targets	USMC	When proposed
Amend fire management plan	BLM, JTNP, USMC	2 years (initiate 1st year)
Transportation Access -Construct highway fencing, install bridges, culverts	Cal Trans	20 years for I-10, I-40 When upgrade occurs, Highway 95
Raven Control	BLM, JTNP, USMC	When monitoring suggests
Retrofit existing large animal guzzlers to protect tortoise	CDFG	5 years
Increase ranger warden patrol during high public use period	BLM, JTNP, USMC, CDFG	As required
Create public education programs	BLM, JTNP, CDFG, USFWS, USMC (integrate)	5 years
Implement routes of travel designations (see above for public information aspect)	BLM, JTNP, USMC	2 years to complete closures and signing. 4 years to start rehabilitation where needed. Highest priority management areas
Accomplish land tenure adjustment (acquisitions)	BLM, JTNP	Long term - accomplish and track requests and progress

DWMAs - Cattle Leases

Grazing decision to cancel Chemehuevi allotment	BLM	Begin in 1 year (2 year process by regulation)
Grazing decision to reduce size of Lazy Daisy allotment	BLM	Begin in 1 year (2 year process by regulation)
Develop strategy to resolve cattle-tortoise competition - Lazy Daisy	BLM	1 year
Implement above strategy	BLM	2 years
Voluntary relinquishment - Lazy Daisy allotment	Private party	At request of lessee
Utilization/Competition assessments/adherence to Guidelines/Standards assessment on Lazy Daisy allotment	BLM	Annually
Retrofit cattle guards - Lazy Daisy	BLM	5 years

WHMAs - Bighorn Sheep & Desert Mule Deer

Task	Agency/Entity	Time-frame - Note
Grazing decision to cancel Ford Dry Lake and reduce Rice Valley domestic sheep allotments	BLM	1 year (to initiate)
Construct burro exclosures around dedicated waters	CDFG, BLM, USMC	Assess need for this after reach appropriate management levels
Construct new waters for bighorn sheep and deer	CDFG (lead)	Annual proposal and assessment
Augment/reestablish demes	CDFG (lead)	As feasible
Implement routes of travel designations (see above for public information aspect)	BLM, JTNP, USMC	4 years to complete closures and signing. 6 years to start rehabilitation where needed. (Combined with multi-species WHMAs)
Accomplish land tenure adjustment (acquisitions)	BLM, JTNP	Long term - accomplish and track requests and progress

WHMAs - Multi-Species

[illegible]	[illegible]	[illegible]
Various conservation projects at springs and seeps: remove tamarisk, enhance habitat, bat habitat.	BLM, USMC, JTNP	10 years Develop, prioritize a list. 3 years - Townsend's riparian analysis
Install bat gates	BLM, USMC, JTNP	10 years
Implement routes of travel designations (see above for public information aspect)	BLM, JTNP, USMC	4 years to complete closures and signing. 6 years to start rehabilitation where needed. (Combined with multi-species WHMAs)
Accomplish land tenure adjustment (acquisitions)	BLM, JTNP	Long term - accomplish and track requests and progress

Other Listed Species - Coachella Valley Milkvetch

[illegible]	[illegible]	[illegible]
Accomplish land tenure adjustment (acquisitions) where occurs on private, SLC lands	BLM	Long term - accomplish and track requests and progress
Develop monitoring plan, send to USFWS	BLM, JTNP	2 years

Burros - Herd Management Areas (HMAs)

[illegible]	[illegible]	[illegible]
Write cooperative agreement for Colorado River agencies. Rewrite HMAPs. Hold annual meetings.	BLM (CA and AZ offices, USFWS national wildlife refuges, Picacho SRA, CDFG, USMC)	1 year to write agreement 4 years to rewrite HMAPs
Establish census	All above (BLM lead)	1 year for initial. Once/2 years until achieve AML. Once/3 years thereafter
Gather excess burros to reach appropriate management level	All above (BLM lead)	Continuously to reduce and then maintain numbers. Various methods: trap, wrangler-helo
Construct burro exclosures around dedicated waters	CDFG, BLM, USMC	Assess need to do after Burros reach appropriate management level

Chapter 7 - Consultation and Coordination

This chapter is divided into three sections. The first provides an overview of public involvement in the planning process. The second describes the distribution and public review of the Draft Plan and Draft Environmental Impact Statement (Draft Plan/EIS). The third is a list of people who prepared the document.

7.1 Overview of Public Involvement in the Planning Process

The Council on Environmental Quality regulations (40 CFR 1501.7) and BLM planning regulations (43 CFR 1610) require an early and open process (scoping) for determining the planning issues. The regulations also require agencies provide opportunities for public involvement in the planning process, including review of the planning criteria and the Draft Plan/EIS. Efforts have been made to make the public aware of the planning process and of opportunities for involvement. When the Proposed Plan and Final EIS are issued (after the 90 day public review of the Draft Plan/EIS), those persons or organizations who have participated in the planning process will be given an opportunity to protest or appeal any part of the Proposed Plan decisions that they believe are wrong.

Issue Identification/Public Scoping

Public Scoping was initially begun in 1993 for the Eastern Colorado Recovery Unit and included four public meetings and written comments. In 1994 the Northern Colorado Desert Recovery Unit was added to the planning area, so Public Scoping was reinitiated with a Notice of Intent to prepare the Plan and an EIS being published in the Federal Register on March 15, 1994. This publishing also announced the schedule and location for public meetings and invited public participation. The announcement was amended on April 25, 1994 to add additional public meetings and extend the public comment period until June 11, 1994. During this 1994 effort eight public meetings were held between March 29 and May 11 and a number of letters were received. In all 12 meetings were held to identify public concerns in the issue identification process. The totals for the two phases are as follows:

- 1993 Public Scoping
- 4 meetings with 67 individuals attending, 137 comments
- 17 letters with 45 comments
- 1994 Public Scoping
- 8 meetings with 128 individuals attending, 259 comments
- 28 letters with 100 comments
- discussions with 14 local, state, and federal agencies; 4 tribal councils; 2 utility companies and 1 major land owner

The total number of public comments was 541. Many issue subjects were covered: e.g., planning process, data collection, research and monitoring, management mandates, and a number of resource and use values. Considering the bulk of individual comments and the relatedness of all comments, the six issues noted in Chapter 1 resulted. It is important to note, however, that these six are not simple but should be considered as aggregates of comments. For instance, addressing the issue of recovery of the desert tortoise must include a consideration of several related comments: e.g., management of a variety of uses, control of ravens, monitoring, research, and coordination among agencies and interest groups.

Plan Development

A number of federal, state and local agencies and non-agency interests have been involved throughout the planning process since public scoping. The people from these entities helped in such tasks as developing and analyzing data, developing and reviews of plan proposals and alternatives, and developing an understanding of the causes and effects of uses on species and habitats, and developing public support for the planning process. The specific individuals involved comprised a group called the Cooperating Agencies/Interest Group Committee and met with planning staff over the entire period of plan development. Many of the agencies and interests noted below were represented on this group.

A public mailing list of about 800 individuals, interest groups, and agencies has been developed. At several times throughout the planning process notifications were sent to this group on the following topics: completion and availability of the inventory of routes of travel and its availability for review or purchase; eight mid-process review public meetings in March, 1996; and a general update in August, 1997. Finally, elements and status of the Plan were reviewed at some of the regular meetings of BLM's Desert Advisory Council (public meetings) over the years.

Future Public Participation

Upon distribution of the Draft Plan/EIS, public meetings will be held and written comments will be accepted during the 90-day review period. The public meetings will be held primarily to receive comments and also to provide explanation of Plan alternatives. Following review of the Draft Plan/EIS, the comments will be considered in preparation of a Proposed Plan and Final EIS which will be prepared and released for a 30 day protest period. The public will be notified of the their availability. These documents will also be sent to the Governor of California of a 60-day review of consistency with State or local plans, policies, and programs. The Approved Plan and Record of Decision will be prepared after any protests [?appeals] or inconsistencies have been resolved.

Endangered Species Act Consultation

The Congress specified that the purposes of the *Endangered Species Act of 1973* (Public Law 97-304), as amended, (ESA) "are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions..." (Sec. 2(b)) The ESA states it "to be the policy of the Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act." (Sec. 2(c)(1)) The fulfillment of these purposes is a fundamental issue in this planning effort.

The ESA further provides that "Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency.. is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species..." (Sec. 7(a)) By Federal regulations (*Code of Federal Regulations, Volume 50, Part 402*) implementing the provisions of Section 7 of the ESA, the BLM and other Federal agencies must *consult* with the USFWS on projects, plans, and actions that may negatively affect a threatened or endangered species. The USFWS then issues a *biological opinion* relative to jeopardy and adverse modification. A similar review, referred to as a *conference* is required for species that are proposed for Federal listing.

In earlier years, consultations were not conducted on land use plans, such as the CDCA Plan. The courts have determined that consultations are required on land-use plans. Therefore, as a part of this planning process, the BLM will formally consult and confer with USFWS on the affects of the NECO Plan and the CDCA Plan in the NECO Planning Area as modified by the NECO plan on threatened, endangered, and proposed species.

The BLM has determined that the only federally listed species affected by the CDCA Plan in the NECO Planning Area is the federally threatened desert tortoise. The BLM will also consult on the affects on desert tortoise critical habitat. In addition, the mountain plover, which is proposed for Federal listing as a threatened species, will require a formal conference. This Plan and Draft EIS together with a CDCA Plan edited with amendments and various other supporting documents (e.g. *Current Desert Tortoise Management Situation in Northern and Eastern Colorado Desert Planning Area*) will provide the necessary information to conduct the consultation/conference.

The BLM also proposes to obtain a *programmatic* biological opinion for desert tortoise on projects that may be proposed in the future. Standard mitigation measures are presented for application on these projects to protect desert tortoise and to compensate for residual impacts to its habitat after mitigation. Further formal consultation would not be required for covered projects (a reporting and review process is included). The programmatic biological opinion will also specify an allowable *incidental take* (i.e., incidental to an otherwise legal activity) for the CDCA Plan and for covered projects.

Consultation with Native Americans

To comply with Executive Orders regarding Government-to-Government relations with Native Americans, formal and informal contacts were made with a number of tribal councils at several points in the planning process. Advise on the nature and progress on the project, concerns and ideas to help define and direct the planning process were asked of the contacts. The tribal entities contacts are listed in Section 7.2. These entities will continue to be contacted and comments requested at key milestone points as the planning process continues.

7.2 Distribution of the Draft Plan and Draft EIS

Notice of availability of the Draft Plan/EIS is being distributed to the entire mailing list. Copies will be provided to anyone expressing an interest in the planning process. In addition, copies will be provided to public libraries throughout the planning area for public review and reference. The following agencies, organizations, political entities, and individuals are being sent a copy and requested to review the document:

Federal Agencies

Bureau of Land Management
Sacramento State Office
California Desert District Office

Palm Springs Field Office
El Centro Field Office
Needles Field Office
Yuma Field Office
Havasu Field Office

Joshua Tree National Park

U.S. Marine Corps Air Station, Yuma
(For the Chocolate Mountains Aerial Gunnery Range)

U.S. Fish and Wildlife Service
Carlsbad Field Office
Ventura Field Office
Havasu National Wildlife Refuge
Cibola National Wildlife Refuge
Imperial National Wildlife Refuge

U.S. Geological Survey
Tucson Field Office
Box Springs Field Office
Western Ecological Center

Environmental Protection Agency
San Francisco Office

U.S. Army Corps of Engineers
San Diego Office
Los Angeles Office

Bureau of Indian Affairs
Southern California Agency
Colorado River Agency
Ft. Yuma Agency

Bureau of Reclamation
Yuma Office

U.S. Border Patrol
El Centro Office
Yuma Office

Office of Environmental Policy and Compliance
San Francisco

California State Agencies

California office of Planning and Research (State Clearing House)

California Department of Fish and Game
Long Beach Office
Sacramento Office

CalTrans
San Diego Office
San Bernardino Office

State Lands Commission
Sacramento Office
Long Beach Office

State Department of Parks and Recreation
Sacramento OHMVR Office
Anza-Borego State Park
Picacho State Park

University of California, Riverside

Metropolitan Water District of Southern California

Imperial Irrigation District

Palo Verde Irrigation District

Coachella Valley Water District

Local Government

County Boards of Supervisors and Planning Departments
San Bernardino
Riverside
Imperial

City Managers
Needles
Blythe

San Bernardino Association of Governments

Coachella Valley Association of Governments

Imperial Valley Association of Governments

BLM, California Desert Advisory Council

Ms Ilene Anderson (Renewable Resources), West Hollywood, CA
Ms Marilyn Beardslee (Transportation & Rights-of-Way), Bakersfield, CA
Mrs. Isabella Burns (Recreation), Monterey Park, CA
Mr. Dennis Casebier (Public at Large), Essex, CA
Mr. Dick Conti (Wildlife), Eagle Rock, CA
Mr. Buford Crites (Elected Official), Palm Desert, CA
Mr. Ian Davidson (Public-at-Large), Riverside, CA
Ms Kathy Davis (Elected Official), San Bernardino, CA
Ms Sheri Davis (Public-at-Large), San Bernardino, CA
Mr. Roy Denner (Recreation), Lakeside, CA
Mr. Nick Ervin (Environmental Protection), San Diego, CA
Mr. Richard Milanovich (Public-at-Large), Palm Springs, CA
Mr. Jim Reddy (Non-renewable Resources), Lucerne, CA
Mr. Randy Rister (Public-at-Large), El Centro, CA
Mr. Jon Stone (Renewable Resources), Winchester, CA

Indian Tribal Councils

Ft. Mojave Indian Reservation, Needles, CA
Chemehuevi Indian Reservation, Havasu Lake, CA
Colorado Indian Tribes Reservation, Parker, AZ
Quechon Indian Reservation, Yuma, AZ
Torres-Martinez Band of Mission Indians, Thermal, CA
Twenty-Nine Palms Band of Mission Indians, Palm Springs, CA
Cabazon Band of Mission Indians, Indio, CA
Palm Springs Band of Mission Indians, Aqua Caliente Reservation, Palm Springs, CA

Leads, Adjacent Planning Projects

West Mojave Plan
Northern & Eastern Mojave Plan
Coachella Valley Multi-Species Conservation Plan
Mojave National Preserve

Interest Groups

Desert Tortoise
Mr. Roger Dale, Desert Tortoise Preserve Committee
Dr. Al Muth, Desert Tortoise Council

Other Wildlife
Mr. Dick Conti, Society for Conservation of Bighorn Sheep
Mr. Leon Lesicka, Desert Wildlife Unlimited
Mr. Norm Wuytens, Desert Wildlife Unlimited

Plants/Plant Communities
Mr. Steve Hartman, California Native Plant Society
Mr. Cameron Barrows, Center for Natural Lands Management

Non-motorized Recreation
Joan Taylor, Sierra Club
Bill Harris, International Mountain Biking Association

Motorized Recreation
Mr. Mike Ahrens, California Association of Four-Wheel Drive Clubs
Ms Jeri Ferguson, (same as above)
Mr. Jim Strain, California Federation of Mineralogical Societies
Mr. Ed Waldhiem, California Off-Road Vehicle Association
Mr. Al Guzman, American Motorcycle Association

Mining
Mr. Craig Smith, Newmont Gold Co. - Mesquite Mine
Mr. Steve Bauman, Glamis Gold, Inc.
Mr. Gary Boyle, Glamis Gold, Inc.

Grazing
Dr. Juan Guerrero, University of California Cooperative Extention

Wild Burros
Mr. Fred Burke, Wild Horse & Burro Board (Dept. of the Interior)

Utilities & Infrastructure
Ms Laura Solorio, Southern California Edison
Mr. Bob Filler, Arid Operations, Inc.

Research & Education
Dr. Bill Presch, Desert Studies Consortium
Dr. Edie Allen, University of California, Riverside

Land Tenure Adjustment
Mr. John Bezzant, Catellus Resources Group
Mr. Shelton Douthit, Riverside Land Conservancy

Agriculture & Business
Mr. Marv Shaw, Cadiz Land Co.
Mr. Steve Jones, Desert Center resident

Congressional Representatives

U.S. Senate

Honorable Diane Feinstein
Honorable Barbara Boxer

U.S. House of Representatives

Honorable Jerry Lewis
Honorable Mary Bono
Honorable Duncan Hunter

California Legislature

State Senate

Honorable William Knight
Honorable Jim Brutte
Honorable Donald Kelly

State Assembly

Honorable Keith Olbers
Honorable Brett Granlund
Honorable Jim Battin

Libraries

The document should be found in most public libraries in Southern California.

7.3 List of Preparers

Introduction

The principle preparers (i.e., writers and geographic information system support) of the Draft Plan and EIS were primarily BLM staff from the California Desert District and are listed below. However, an additional set of people are recognized for making significant contributions at some point in the planning process to the collection and analysis of data and the planning process. Apologies are made where the list may not recognize all contributions.

Principle Preparers (name, discipline, office)

Team Lead
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    Genea Kennedy, District Office

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Livestock Grazing
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Minerals
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Cultural Resource/Native American Values
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Karen Dorweiler, ECO Biologist

Principle Contributors for Data, Analyses, and Other aspects of Planning Process

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Glossary

Accelerated Erosion: Soil loss above natural levels resulting from human activities.

Action plan: A plan designed to provide details on a short-term activity (e.g., bighorn sheep transplant, prescribed burn).

Activity plan: A detailed plan for managing a single resource program or a given area. The need for an activity plan is usually identified in a land use plan.

Adverse Effect (cultural Resources): Alternation of the characteristics which contribute to the use(s) determined appropriate for a cultural resource or which qualify a cultural property for the National Register to such a degree that the appropriate use(s) are diminished or precluded or the cultural property is disqualified from National Register eligibility. Criteria in the regulations of the Advisory Council (36 CFR, Part 800) guide the determination of adverse effects.

Age Class: An age interval, usually with a 10 to 20 years span, to which a vegetative area is classified (e.g. a 80-100 year old stand of bitterbrush).

Age Structure: The distribution of animals among various defined age classes (e.g., 0-1, 1-2, 2-5, 5-10, 10-15, 15-30) used in describing the dynamics of an animal population.

Air Pollution: Accumulation of aerial wastes beyond the concentrations that the atmosphere can absorb and which may damage the environment.

Air Quality Classes: Classes established by the Environmental Protection Agency (EPA) that define the amount of air pollution considered significant within an area:

- Almost any change in air quality would be considered significant
- Deterioration normally accompanying moderate, well-controlled growth would be considered insignificant.
- Deterioration up to the National Standards would be considered insignificant.

Alien Plants/Animals: Species which are not native to the area; also termed "exotic".

Allotment: An area of land designated and managed for the grazing of livestock by one or more livestock operators. It generally consists of public lands, but may include parcels of private and other Federal or State owned lands.

Allotment Categorization: As an aid to prioritize grazing allotments for development of management plans, BLM has placed all allotments into one of three categories: improve (I), maintain (M), or custodial (C).

Allotment Management Plan (AMP): An activity plan for livestock grazing. The plan will include management goals and objectives, supporting facilities, the sequence of actions for achieving objectives, and procedures for evaluation accomplishments.

Alluvial Fan: A fan-shaped accumulation of disintegrated soil material; deposited by water and located in a position where the water departs from a steep, narrow coarse to enter upon a flat plain or an open valley bottom.

Alluvium: Material, including clay, silt, sand, gravel, or similar unconsolidated sediments, deposited by a streambed or other body of running water.

Ambient Air Quality: Prevailing condition of the atmosphere at a given time; the outside air.

Animal Unit (AU): A measurement of animal numbers based on the equivalent of a mature cow with calf (1000 pounds live weight); roughly one cow with calf, one horse, five sheep, or five deer. One burro equals 7/10ths

Animal Unit Month (AUM): The amount of forage necessary to support a cow and her calf for one month. One AUM will also support five sheep or goats, a bull, and a horse for one month.

Apparent Trend:

Appropriate Management Level (AML): A single number which is the highpoint of an established population range to maintain a thriving natural ecological balance, based on available forage, water, and other resource needs or conflicts (relating to management of wild horses and burros).

Aquifer: A water bearing unit of permeable rock or sediment that is capable of yielding water to wells.

Area of Critical Environmental Concern (ACEC): Areas within the public lands where special management attention is needed to protect and prevent irreparable damage to important historical, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.

Area of Potential Effect (APE): Primarily used in analysis of cultural resources.

Back Country Byway:

Biodiversity:

Biomass: The total amount of living plants above the ground in an area at a given time.

Browse: *n* That part of leaf and twig growth of shrubs, woody vines, and trees; available for animal consumption. *vb* To consume or browse.

Browsers: Animals that feed primarily on browse.

Campsite: A cultural site type representative of all period consisting of temporary habitat areas which usually contain a lithic scatter, evidence of fire use, ground stone, and pottery scatter.

Candidate Species: Any species of animal or plant or population thereof for which the USFWS currently has on file substantial on biological vulnerability and threat (s) to support proposals to list them as endangered or threatened species. Issuance of proposed rules for listing are presently precluded by other higher priority listing actions.

Canopy Cover: The cover of leaves and branches formed by the tops or crowns of plants a viewed from above.

Carrying Capacity: Maximum stocking rate possible without inducing damage to vegetation or related resources. It may vary from year to year on the same area due to fluctuating weather conditions and forage production (see grazing capacity).

Categories, desert tortoise: The classification of desert tortoise habitat, applied only to BLM-administered Federal lands, for overall management for viable populations of desert tortoise. The system was developed in 1998 through BLM's *Desert Tortoise Habitat Management on Public Lands, A Rangewide Plan*. Category areas were later designated through amendment of the CDCA Plan. Tortoise habitat was assigned according to relative importance, manageability, and population density and trend into three types of categories of management areas, each with specific goals as follows:

- Category I: maintain stable, viable populations and protect existing tortoise habitat values; increase population, where possible.
- Category II: maintain stable, viable populations and halt further decline on tortoise habitat values.
- Category III: limit tortoise habitat and populations declines to the extent possible by mitigating impacts.

Catastrophic Event: A large scale, high intensity natural disturbance that occurs infrequently (e.g., flood, fire).

Cave: Any naturally occurring void, cavity, recess, or system of interconnected passages which occurs beneath the surface of the earth or within a cliff or ledge (including any cave resource therein, but not including any mine, tunnel, aqueduct, or other man-mad excavation) and which is large enough to serve as cave habitat for wildlife. Such term shall include any natural pit, sinkhole, or other feature that is an extension of the entrance.

Climax Vegetation Community: The final or stable community in a series of successive vegetation states which is self-perpetuating and in dynamic balance with the physical and biotic environment.

Community: A group of plants and animals living together in a common area and having close interactions.

Compensation: A form of mitigation performed off of the project site.

Concentration Area (Critical Area): That portion of the herd area where animals tend to congregate and forage impacts are most extreme (related to wild horses and burros).

Conservation Zone:

Conservancy: A non-profit, privately funded organization whose purpose is to acquire lands for conservation of natural elements.

Consult/consultation: A cooperative effort established by the Endangered Species Act between Federal agencies and the USFWS. The purpose is to ensure that agency actions conserve listed species, aid in recovery of listed species, and protect critical habitat.

Coordinated Resource Management Plan: A plan for management of one or more allotments that involves all the affected resources (e.g., range, wildlife, and watershed).

Critical Period: The tine period the entire herd is within the critical area, usually during the hot or dry seasons.

Critical Habitat: Habitat designated by the USFWS under Section 4 of the Endangered Species Act, under the following criteria 1) specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management of protection; or 2) specific areas outside the geographical area by the species at the time it is listed but are considered essential to the conservation of the species.

Crucial Habitat: That area designated by BLM that is necessary to the existence, perpetuation, or introduction of one or more special status species during critical periods of their life cycle.

Cultural Property: Any definite location of past human activity, habitation or use identified through a field inventory , historical documentation or oral evidence. This term may include; 1) archeological or historic sites, structures and places, and 2) sites or places of traditional cultural or religious importance to a specific group, whether or not represented by physical remains. Cultural properties are managed by the system of inventory evaluation, protection and use.

Cultural Resources: Those fragile and non-renewable remains of human activities, occupations, and endeavors as reflected in sites, buildings, structures, or objects, including works of art, architecture, and engineering. Cultural resources are commonly discussed as prehistoric and historic values, but each period represents a part of the full continuum of cultural values from the earliest to the most recent.

Cultural Site: A physical location of past human activities or events. Cultural resource sites are extremely variable in size and range from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features. Prehistoric and historic sites, which are recorded as cultural resources, have sociocultural or scientific value and meet criterion of being more than fifty years old.

Delisting: The process of removing a species from the list of threatened and endangered species. See also *recovery*.

Deme: A subgroup of a metapopulation. In this Plan it mainly applies to large animals; bighorn sheep and deer.

Density: The number of organisms per unit area.

Desert Advisory Council: See Resource Advisory Council.

Desert Tortoise Recovery Plan: Recovery plan written by the USFWS, specific to the listing of the desert tortoise.

Designated Right-of-Way Corridor: A parcel of land, usually linear in shape, that is identified through Secretarial Order in a land use plan or by other management decision as a preferred location for existing and future rights-of-way grants.

Desired Beneficial Use: The use of water that is deemed beneficial and desirable; guidance for making determinations is contained in the Clean Water Act (Federal), Executive Order 12088, Porter-Cologne Act (California), Clean Water Act (Nevada), and Memorandum of Understanding between the California Water

Resource Control Board, BLM, and others.

Diversity: Physical, biological, or cultural variety.

Dual-sport event: a motorcycle event in which vehicles must be licensed for street use and have a State off-highway vehicle tag. These events are low-speed, non-competitive, touring events.

Early Seral Stage: A plant community with a species composition which is 0-25% of the potential natural community one would expect to find on that ecological site.

Ecological Processes:

Ecological Site: A kind of land with a specific potential natural community and physical site characteristics differing from other kinds of land in its ability to produce vegetation and to respond to management.

Ecological Status: The state of vegetation and soil condition of an ecological site in relation to the potential natural community for the site. Vegetation status is the expression of the relative degree to which the kinds, proportions and amounts of plants in the community resemble that of the potential natural community. If classes are used, they should be described in ecological rather than utilitarian terms. Soil status is a measure of present vegetation and litter cover relative to the amount of cover needed on the site to prevent accelerated erosion.

Ecosystem: A complex self-sustaining natural system, which includes living and non-living components of the environment and the circulation of matter and energy between organisms and their environment.

Endangered Species: as defined in the Federal Endangered Species Act, any species which is in danger of extinction throughout all or a significant portion of its range. For terrestrial species, the USFWS determines *endangered* status.

Energy Flows: Pertaining to the flow of energy through an ecosystem; usually described as an "energy pyramid." The rates of energy flow can vary on rangelands in both space and time. An example of energy flow is -- sunlight energy is captured and converted into carbohydrates by green plants (producers) through photosynthesis; deer (primary consumers) eat the plants; coyotes (secondary consumers) eat deer; and eagles (tertiary consumers) eat coyotes.

Environmental Assessment (EA): A public document for which a federal agency is responsible that serves to; (a) briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a finding of no significant impact; (b) aid an agency's compliance with the National Environmental Policy Act (NEPA) when no Environmental Impact Statement is necessary; (c) Facilitate the preparation of a statement when one is necessary. An EA includes brief discussions of the need for the proposal and of the environmental impacts of the proposed action and other alternatives.

Environmental Consequence: A temporal or spatial change in the human environment caused by an act of man. The change should be (1) perceptible, (2) measurable, and (3) relatable through a change agent to a proposed action or alternative. A consequence is something that follows an antecedent (as a cause or agent). Consequences are synonymous with impacts and effects.

Environmental Impact Statement: A written analysis of the impacts on the natural, social, and economic environment of a proposed project or resource management plan.

Ephemeral forage: Part-time or seasonal forage; forage produced by annual forage species.

Ephemeral range: Grazing lands that do not consistently produce forage but periodically provide annual vegetation as livestock forage.

Equivalent Funds:

Erosion: Detachment and movement of soil from the land by wind, water, or gravity.

Evaluation (Cultural Resources): The analysis of cultural resource inventory records, the application of professional judgement to identify characteristics that contribute to possible uses for recorded cultural resources, and the recommendation of appropriate use(s) for each resource or group of resources. National Register eligibility criteria, 36 CFR part 60, are interpreted through or with reference to BLM evaluation criteria.

Exclosure: a fence that completely surrounds a relatively small area (e.g., a wetland or research plot) to exclude large non-native animals such as cattle and burros.

Existing Right-of-Way Corridor: See Designated Right-of-Way Corridor.

Exotic Species: A species of plant or animal that is not native to the area where it is found. Any species that is not indigenous, native, or naturalized.

Extensive Recreation Management Areas (ERMAs): Areas where recreation is unstructured and dispersed and where minimal recreation-related investments is required. ERMAs provide recreation visitors the freedom of choice with minimal regulatory constraint.

Federal Land: Land owned by the United States, without reference to how the land was acquired or which Federal Agency administers the land, including mineral and coal estates underlying private surface.

Federal Land Policy and Management Act of 1976 (FLPMA): Public Law 94-579, which gives the BLM legal authority to establish public land policy, to establish guidelines for administering such policy and to provide for management, protection, development and enhancement of the public land.

Fire Management: The integration of fire protection, prescribed burning, and fire ecology knowledge into multiple use planning, decision making, and land management activities.

Forage: Browse and herbage which is available and can provide food for animals or be harvested for feeding.

Forage Utilization: An index to the extent forage is used; utilization classes range from slight (less than 20%) to severe (more than 80%).

Forb: (1) Any herbaceous plant other than those in the Gramineae (true grasses), Cyperaceae (sedges), and Juncaceae (rushes) families - i.e. any non-grasslike plant having little or no woody material on it; or (2) a broad-leaved plant whose above ground stem does not become woody or persistent.

Fundamentals of Rangeland Health: As described in 43 CFR 4180; the conditions in which rangelands are in properly functioning physical condition, ecological processes are supporting healthy biotic populations and communities, water quality is meeting State standards and BLM objectives, and Special Status Species habitat is being restored or maintained.

General plans: a fundamental policy document for a local government (i.e., county or city) usually including a plan establishing zones of allowable land uses and intensity of use (e.g., residential, commercial, industrial, open space).

Grass: Any of a family of plants with narrow leaves, jointed stems, and seed-like fruit.

Grazing Capacity: The maximum stocking rate for grazing animals possible without inducing damage to vegetation or related resources.

Grazing Preference: The total number of AUMs of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee. Active preference combined with suspended non-use make up total grazing preference.

Ground Cover: Small rocks, litter, basal areas of grass and forbs, and aerial coverage of shrubs that provide protection to the soils surface (i.e. in contrast to bare ground).

Ground Water: Water beneath the land surface, in the zone of saturation.

Guidelines for Livestock Grazing: Livestock grazing management tools, methods, strategies, and techniques designed to maintain or achieve healthy public lands; as defined by the Standards for Rangeland Health.

Gully Erosion: Removal of the soil leading to formations of relatively large channels or gullies cut into the soil by concentrations of runoff.

Guzzler: (general term covering guzzler, wildlife drinker, tenaja) A natural or artificially constructed structure or device to capture and hold naturally flowing water, and make it accessible to small and/or large animals. Most guzzlers involve above or below ground piping, storage tanks, and valves. Tenajas are natural depressions in rock which trap and hold water. To some tenajas, steps are sometimes added to improve access and reduce mortality from drowning.
Habitat: The natural environment of a plant or animal.

Habitat conservation plan (HCP): a comprehensive planning document pursuant to Section 10(a)(2) of the Endangered Species Act that is a mandatory component of an incidental take permit for a project with no Federal nexus. (See multi-species conservation plan.)

Habitat Management Plan: (HMP): An activity plan for wildlife/plant resources for a specific geographical area of public land. It identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

Habitat Requirements: A specific set of physical and biological conditions that surround a single species, a group of species, or a community of species upon which the species or associations are dependent for their existence. In wildlife management, the major components of habitat are considered to be food, water, cover and living space.

Heavy Use: Indicates that 60 to 80% of the year's forage production has been eaten or destroyed by grazing animals.

Herbaceous: Vegetation with little or no woody component; non-woody vegetation such as grasses and forbs.

Herd Area (HA): (related to wild horses and burros) The geographic area identified as having been used by a wild horse or burro herd as its habitat in 1971.

Herd Management Area (HMA): (related to wild horses and burros) Area or areas established within the herd area for the maintenance of wild horses and burros.

Herd Management Area Plan (HMAP): (related to wild horses and burros) A plan approved by an authorized officer for a specific geographical area or areas of public lands which identifies how wild horse or burro herds will be managed. The plan should identify use areas and habitat, population and habitat objectives, the sequence of actions for achieving objectives, and procedures for evaluating accomplishments.

Historical Cultural Resources: Historical Cultural Resources include all mines, ranches, resorts, trails, railroads, towns, and other evidence of human use from the entrance of the Spanish to 1938.

Indicator: Quantitative measure of an ecosystem element which is used to describe the condition of an ecosystem; changes in indicators over relatively short periods of time are used to measure affects of management.

Incidental take: that take which is incidental to the pursuit of an otherwise legal activity. Legal incidental take is set forth by the USFWS in a biological opinion under Section 7 of the Endangered Species Act.

Isolated Tract: A parcel of public lands surrounded by non-federal lands.

Key Area: A relatively small portion of land selected, based on its location, use, or grazing value, as a location for monitoring the effects of grazing use. It is assumed that key areas, if properly selected, will reflect the effects of current grazing management over all or a part of a pasture, allotment, or other grazing unit.

Key (Forage) Species: (1) Species that, because of their importance, must be considered in a management program; or (2) forage species whose use shows the degree of use of associated species.

Landscape (Scale): An area of interacting ecosystems where patterns are repeated because of geology, landform, soils, climate, biota, and human influences throughout the area. Applied in terms of 100's to 1000's of acres.

Land Disposal: A transaction that leads to the transfer of title of public lands from the Federal Government.

Late Seral: A plant community with a species composition which is 51 to 75% of the potential natural community one would expect to find on that ecological site.

Leasable Minerals: Minerals such as coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources, and all other minerals that may be acquired under the Mineral Leasing Act of 1920, as amended.

Lithic: A stone or rock exhibiting modification by humans. It generally applies to projectile points, scrapers and chips, rather than ground stone.

Lithic Scatter: A prehistoric cultural site type where flakes, cores, and stone tools are located as a result of the manufacture or use of the tools.

Locatable Minerals: A mineral subject to location under the 1872 mining laws. Examples of such minerals would be gold, silver, copper and lead as compared to oil and natural gas, which are leasable minerals.

Management Framework Plan (MFP): A planning decision document that establishes for a given planning area land use allocations, coordination guidelines for multiple use, and management objectives to be achieved for each class of land use. A MFP is prepared in three steps: (1) resource recommendations, (2) impact analysis and alternative development, and (3) decision making.

Management Oversight Group (MOG): a group of high-level management representatives from USFWS, BLM, NPS, Biological Resources Division of U. S. Geological Survey, state wildlife agencies, Edwards Air Force Base, China Lake Naval Weapons Center, the Army National Training Center (Fort Irwin), and Twentynine Palms Marine Corps Base. The MOG establishes overall policy for tortoise management.

Manipulative Research: Research that introduces disturbance and other invasive methods such as digging and removing soil; clipping, burning, removing vegetation (see Research).

Metapopulation: An interdependent set of subgroups. In the case of mammals they are connected by corridors.

Metallic Minerals: Those minerals whose native form is metallic or whose principle products after refinement are metallic.

Mid Seral Stage: A plant community with a species composition which is 26 to 50% of the potential natural community one would expect to find on that ecological site.

Mineral Entry: The location of mining claims by an individual to protect his right to a valuable mineral.

Mineral Withdrawals: Closure of land to mining laws, including sales, leasing and location, subject to valid existing rights.

Mitigation: in general, a combination of measures to lessen the impacts of a project or activity on the an element of the natural environment or various other cultural or historic values; more specifically, as defined by the Council on Environmental Quality in its regulations for implementing NEPA, mitigation includes: (a) avoiding the impact, (b) minimizing the impact, (c) rectifying (i.e., repairing, rehabilitating, or restoring) the impact (d) reducing or eliminating the impact through operations during the life of the project, or (e) compensating by replacing or substituting resources (40 CFR Section 1508.20).

Moderate Use: Indicates that 40 to 60% of the current years forage production has been eaten or destroyed by grazing animals.

Monitoring: The timed collection of information to determine the effects of resource management and to identify changing resource conditions or needs.

Mortality Rate: This is the number of deaths/100 population or group that must be subtracted from the observed recruitment (e.g., foals/100 adults) to determine accurate population projections.

Multiple Use: Describes a fundamental mandate to manage lands, uses, and resource values in a manner that promotes social and/or economic uses by the public in the combination with protection of cultural resources and conservation of biological resources on a sustained yield basis. Relative resource values are considered but not necessarily the combination of uses that will give the greatest potential economic return or the greatest unit output.

Multi-species conservation plan: same as (see) habitat conservation plan.
National Ambient Air Quality Standards (NAAQS): National standards established under the Clean Air Act by the Environmental Protection Agency (EPA). Prescribed levels of pollution in the outdoor air which may not be exceeded. There are two levels of NAAQS: primary, set at a level to protect the public health from air pollution damage, and secondary, set at a level to protect public welfare from air pollution damage.

National Environmental Policy Act (NEPA) of 1969: A law enacted on January 1, 1970 that established a national policy to maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. It established the Council on Environmental Quality for coordinating environmental matters at the federal level and to serve as the advisor to the President on such matters. The law made all federal actions and proposals that could have significant impact on the environment subject to review by federal, state and local environmental authorities.

National Historic Preservation Act (NHPA): The primary federal law providing for the protection and preservation of cultural resources. NHPA established the National Register of Historic Places, the Advisory Council on Historic Preservation, and the State Historic Preservation Officers.

National Register of Historic Places (NRHP): A list of buildings, sites, districts, structures and objects significant in American history, architecture, archeology, and culture maintained by the Secretary of the Interior. Expanded as authorized by Section 2(b) of the Historic Sites Act of 1935 (16 U.S.C. 462) and Section 101(a) (1) (A) of the National Historic Preservation Act.

Native (indigenous) Species: A species of plant or animal that naturally occurs in an area and that was not introduced by humans.

Nonpoint Pollution: Pollution from scattered sources, as opposed to pollution from one location, e.g. a manufacturing plant.

Non-Use: AUMs that are normally available for use, but are not grazed through either the permittee's or BLM's request. Nonuse is applied for and authorized on an annual basis.

Nutrient Cycle: Circulation of chemical elements, such as carbon or nitrogen, in specific pathways from the non-living (abiotic) parts of the environment into the organic substances (plants and animals), and then back again into abiotic forms.

Objective: A measurable description of a desired future condition that specifies what is to be accomplished, location, and timeframe.

Obligate: Restricted to a particular set of environmental conditions. (opposed to facultative).

Off-Highway Vehicle (OHV): Any motorized vehicle designed for cross-country travel over any type of natural terrain and not restricted to the use of roads.

Off-Highway Vehicle Designations: BLM designations used in this document are as follows;

- **Open Areas**: Designated areas and trails where OHVs may operate without restrictions
- **Limited Areas:** Designated areas and trails where the use of OHVs is subject to restrictions such as limits on the number or types of vehicles allowed or the dates and times of use, limit of use to existing roads ands trails, or limit of use to designated roads and trails.
- **Closed Areas:** Areas, roads and trails where the use of OHVs are permanently or temporarily prohibited. Emergency use of vehicles is allowed.

Overgrazing: Consumption of vegetation by herbivores beyond the endurance of a plant to survive.

Passive research: Research that relies on observation and largely non-disturbing methods (see Research).

Pedestaling: The occurrence of plants or rocks on pedestals means that the soil has eroded away from the base of the plant or rock and it has become slightly elevated above the eroded surface of the soil. The height of the pedestals and the degree of root exposure can serve as indicators of the degree of soil loss.

Perennial Plant Species: A plant that has a life cycle of three years or more.

Perennial Stream: A stream that flows throughout the year for many years.

Permeability Rate (soil): The rate at which gases, liquids (water), or plant roots penetrate or pass through a bulk mass of soil or a layer of soil.

Permittee: A person or company permitted to graze livestock on public land.

Permitted Use: The number of animal unit months (AUMs) available to be grazed (authorized on a grazing permit or lease).

Petroglyph: A form of rock art manufactured by incising, scratching or pecking designs into rock surfaces.

Phenology: The study of the time of appearance of characteristic periodic events in the life cycles of organisms in nature and how these events are influenced by environmental factors.

Pictograph: A form of rock art created by applying mineral based or organic paint to rock surfaces.

Plant Community: Assemblage of plant populations in a defined area or physical habitat; an aggregation of plants similar in species composition and structure, occupying similar habitats over the landscape (see vegetation type).

Playa: The usually dry and very level lake-plain that occupies the lowest part of a closed depression.

Predator: An animal that preys on one or more other animals.

Prescribed Fire (Prescribed Burn): A controlled wildland fire ignited by humans under specified conditions, to accomplish specific, planned resource objectives. This practice is also known as "controlled burning".

Properly Functioning Condition (Riparian-wetlands): Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid in floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by land form, soil, water, and vegetation.

Properly Functioning Condition (Uplands): Uplands are functioning properly when the existing vegetation and ground cover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by land form, soil, water, and vegetation.

Proposed Species: A species of plant or animal formally proposed by the U.S. Fish and Wildlife Service (USFWS) to be listed as threatened or endangered under the Endangered Species Act.

Public Land: Any land and interest in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except:

- Lands located on the Outer Continental Shelf
- Lands held for the benefit of Indians, Aleuts, and Eskimos
- Lands in which the United States retains the minerals, but the surface is private

Quarter Quad: one-fourth of a 7 ½' quadrangle map

Range Condition: The present state of the plant community on a range site in relation to the potential natural plant community for that site.

Range Improvement: A structure, development or treatment used to rehabilitate, protect or improve the public lands to advance range betterment.

Range Management: The science and art of optimizing the returns from rangelands in those combinations most desired by and suitable to society through the manipulation of range ecosystems.

Range Site: Rangeland that differs in its ability to produce a characteristic natural plant community. A range Site is the product of all the environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differ from other range sites in the kind or proportion of species or in total production.

Rangeland Condition (Ecological): The present state of the vegetation on a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant community for that site. Rangeland Condition is basically an Ecological rating of the plant community. Four classes are used to express the degree to which the composition of the present plant community reflects that of the climax:

[redacted]	
Excellent	76-100
Good	51-75
Fair	26-50
Poor	0-25

Rangeland Condition Trend: The direction of change in Rangeland condition.

Rangewide Plan: A document entitled *Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan* and signed by the BLM Director in 1988. It established overall policy for management of desert tortoise habitat on BLM lands in Arizona, California, Nevada, and Utah.

Raptor: Any predatory bird (such as falcon, hawk, eagle, or owl) that has feet with sharp talons or claws adapted for seizing prey and a hooked beak for shearing flesh.

Research: Systematic inquiry into a subject in order to discover new information or revise facts and theories. Research follows a scientific method and must be repeatable (see Passive Research and Manipulative Research).

Recovery: Improvement in the status of a listed species to the point at which listing is no longer appropriate under the criteria set forth in Section 4 of the Endangered Species Act. Also, the process by which species and/or their ecosystems are restored so the species is self-sustaining.

Recovery criteria: objective, measurable criteria which, when met, will lead to a species being removed from the list threatened and endangered species (i.e., delisting). Recovery criteria are a required element of a recovery plan as specified in Section 4(f)(1) of the Endangered Species Act.

Recovery Unit: The general geographic in which recovery effort needs to be directed to provide for the recovery of a species.

Recreation Opportunity Spectrum: A continuum used to characterize recreation opportunities in terms of, setting, activity and experience opportunities. Six classes are included: Primitive, Semi-primitive Non-motorized, Semi-primitive Motorized, Roaded natural, Rural and Modern urban.

Recruitment: Addition to a plant or animal population from all sources, including reproduction, immigration, and stocking.

Resource Advisory Council (RAC): A group established pursuant to 43 CFR 1780 and other authorities to advise BLM on resource management issues. In the California Desert District , the California Desert District Advisory Council serves as the RAC.

Riparian (Zone): The transition area between an aquatic ecosystem and an adjacent terrestrial ecosystem identified by soil characteristics or distinctive vegetation communities that require free or unbound water.

Right-of-Way (ROW): An easement or permit, which authorizes public land to be used for a specified purpose that generally requires a long narrow strip of land. Examples are roads, powerlines, pipelines, etc.

Recreation Visitor Day: An aggregation of 12 visitor hours. A visitor hour is the presence of one or more persons on land and water for outdoor recreation for periods totaling 60 minutes; one person for one hour, two persons for one-half hour and so on.

Research Natural Area:

Rock Art (Petroglyph or Pictograph): An Archaic to modern cultural site type consisting of incised or painted figures such as people, animals, plants or abstracts on a rock surface.

Rock Shelter: A cultural site representative of all periods consisting of an area protected by an overhanging cliff. Often associated with the same materials as a campsite or rock art.

Runoff: A general term used to describe the portion of precipitation on the land that ultimately reaches streams; may include channel and non-channel flow.

Scale: The degree of resolution used in observing and measuring ecosystem processes, structures and changes over space and time.

Season of Use: The time during which livestock grazing is permitted on a given area, as specified in the grazing permit and/or terms and conditions.

Section: One square mile or 640 acres.

Seeps: Groundwater discharge areas. In general, seeps have less water flow than a spring.

Seral Stage (State): Pertaining to the successional stages of biotic communities. One of a series of biotic communities that follow one another in time on any given ecological site (See Succession).

Severe Use: Utilization in excess of 80%.

Sex Ratio: The ratio existing between the number of male and female animals within a given herd, band or population. It is sometimes expressed as the number of males per 100 females.

Sheet Erosion: The removal of a fairly uniform layer of soil or materials from the land surface by rainfall or runoff water.

Short-Term Impact: Ten years or less; approximately the year 2009

Sign (tortoise): Those elements indicating the presence of desert tortoise in an area, including live tortoise, dead tortoise or shell fragments, burrow, and scat.

Slight use: Indicates that 0 to 20% of the current years forage production has been eaten or destroyed by grazing animals.

Soils: (a) The unconsolidated mineral material on the immediate surface of the earth that serves as the natural medium for the growth of land plants. (b) The unconsolidated mineral matter of the surface of the earth that has been influenced by genetic and environmental factors including parent material, climate, topography, all acting over a period of time and producing soil that differs from thew parent material in physical, chemical, biological and morphological properties and characteristics.

Soil Compaction: A decrease in the volume of soil as a result of compression stress.

Soil (Ground) Cover: The percentage of material, other than bare ground, covering the land surface. Soil cover may include live vegetation, standing dead vegetation, plant litter, cobble, gravel, stones, and bedrock.

Soil Productivity: Capacity of a soil to produce biomass through plant growth.

Soil Series: A group of soils having genetic horizons (layers) that, except for texture of the surface layer, have similar characteristics and arrangement in the profile.

Special Recreation Management Area (SRMA): An area where special management or intensive recreation management is needed. Recreation activity plans are required, and greater managerial investment in facilities or supervision can be anticipated.

Special Status Species: Plant or animal species listed as endangered, threatened, candidate, or sensitive by Federal or State governments.

Species: A fundamental category of plant or animal classification.

Species Richness: Number of species, either in total or by some grouping scheme.

Standards for Rangeland Health: A description of conditions needed to sustain public land health; relates to all uses of the public lands.

State Land: Lands administered by any one of several State agencies.

Strip-transect: A survey line of fixed width (usually 0-30 meters) in which a resource is measured (e.g., tortoise sign, plants).

Succession: The constantly occurring process of community change; the sequence of communities that replace one another in a given area over time; e.g. progressive development of vegetation after a fire (bare ground) towards its highest ecological expression, the climax community (old growth conifer). Theoretically, it is reasonably directional and, therefore, predictable.

Suspended Non-Use: AUMs withdrawn from authorized use; may potentially be re-authorized for use if range conditions improve.

Sustainability: The ability to maintain diversity, productivity, resilience to stress, health, renewability, and yields of desired values, resource uses, products, or services over time in an ecosystem while maintaining its integrity.

Sustained Yield: The achievement and maintenance in perpetuity of a high level of annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use.

Take: As defined in the Section 3 of the Endangered Species Act, to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct relative to a listed species. Take of a listed species is prohibited by Section 9 of the Endangered Species Act except under permit from USFWS.

Terms and Conditions: Mandatory measures in the contained in a biological opinion from USFWS pursuant to Section 7 of the Endangered Species Act or in a habitat conservation plan signed by USFWS pursuant to Section 10. The measures are mandatory for the authorization of incidental take.

Territory: The defended part of an animal's range.

Threatened Species: 1) Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, and 2) as further defined by the Endangered Species Act of 1973.

Transition Period: The period of time between completion and adoption of these standards and guidelines and their being placed in operational effect at the individual grazing permit terms and conditions level.
Trap: A device or site used to capture and perhaps temporarily hold an animal(s).

Unit Resource Analysis (URA): (1) A comprehensive display of inventory and analysis of resources data and an analysis of the current use, production, condition, trend, and use potential and opportunity within a planning unit. The term and document structure is no longer a part of current planning procedures, but may still be found in older planning documents that are still applicable.

Upland: Land at a higher elevation than the alluvial plain or low stream terrace; all lands outside the riparian-wetland and aquatic zones.

Utilization: The proportion of a year's forage production that is consumed or destroyed by grazing animals.

Vegetative Community Type: Refers to the species or various combinations of species which dominate or appear to dominate an area of rangeland or habitat (see plant community).

Vegetation Status: The expression of the relative degree to which the kinds, proportions, and amounts of plants in a community resemble that of the potential plant community (see early seral, mid-seral, late seral and potential plant community)

Viable populations: Populations of plants and/or animals that persist for a specified period of time across their range despite normal fluctuations in population and environmental conditions.

Viewshed: The landscape that can be directly seen under favorable atmospheric conditions from a viewpoint or along a transportation corridor.

Vigor (Plant): Pertaining to characteristics such as a mix of plants with normal growth on the basis of height, color, seed production, rhizome and stolon production, and annual biomass production.

Visual Resources: Visible features of the landscape including land, water, vegetation, and animals.

Visual Resource Management (VRM): The planning, designing and implementation of management objectives for maintaining scenic value and visual quality on public lands.

Water: A natural or artificial water source or site (see Guzzler).

Wetlands: An area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wilderness Area: An area of Federal land withdrawn by act of Congress pursuant to the Wilderness Act to be protected in its natural condition for the use and enjoyment of the people of the United States, maintaining its primeval character and providing for visitor solitude.

Wilderness Characteristics: Identified by congress in the 1964 wilderness act; namely size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archeological, historical, ecological, scenic, or other features. It is required that the area possess at least 5,000 acres or more of contiguous or be of a size to make practical its preservation and use in an unimpaired condition; be substantially natural or generally appear to have been primarily by the forces of nature, with the imprint of man being substantially unnoticeable; and have either outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Wild Free-Roaming Horse or Burro: Any and all unbranded and unclaimed horses, burros and their progeny that have used public lands on or after December 15, 1971, or that do use these lands as all or part of their habitat.

Wild Horse Area: An area of the public lands which provides habitat for one or more wild horse herds.

Wildlife: All living vertebrate and invertebrate fauna that exists or potentially exists in an area.

Wildlife Habitat Management Area:

Withdrawal: The act of withholding an area of Federal land from settlement, sale, location, or entry under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program; or transferring jurisdiction over an area of Federal land, other than property governed by the Federal Property and Administrative Services Act, from one department, bureau, or agency to another department, bureau, or agency.

Woody Riparian Species: Plant species consisting of wood such as trees, shrubs, or bushes found in riparian-wetland areas.

Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADC	Animal Damage Control
AIRFA	*American Indian Religious Freedom Act of 1978*
AML	Appropriate Management Level
AMP	Allotment Management Plan
APE	Area of Potential Effect
AQCR	Air Quality Control Regions
AQS	Air Quality Standard
ATV	All Terrain Vehicle
AUM	Animal Unit Month
BLM	Bureau of Land Management
BMP	Best Management Practices
BO	Biological Opinion
BOR	Bureau of Reclamation
C&MAU	Classification and Multiple Use Act
CEQ	Council on Environmental Quality
CEQA	*California Environmental Quality Act*
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game
CDPA	*California Desert Protection Act of 1994*
CESA	*California Endangered Species Act*
CFR	Code of Federal Regulations
CMAGR	Chocolate Mountains Aerial Gunnery Range
CMP	Coordinated Management Plan
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CMP	Coordinated Resource Management and Planning
CVAG	Coachella Valley Association of Governments
DAG	Desert Access Guide
DEIS	Draft Environmental Impact Statement
DLE	Desert Land Entry
DOD	Department of Defense
DOI	Department of the Interior
DRP	Draft Resource Plan
DTRP	*Desert Tortoise Resource Plan June 1994*
DWMA	Desert Wildlife Management Area
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	*Endangered Species Act of 1973*
FEIS	Final Environmental Impact Statement
FESA	*Federal Endangered Species Act*
FLPMA	*Federal Land Policy and Management Act*
FMAP	Fire Management Activity Plan
FY	Fiscal Year

GEM	Geology, Energy, Minerals (Survey)
GIS	Geographic Information Systems
GMP	General Management Plan
HAZMAT	Hazardous Material
HCP	Habitat Conservation Plan
HMA	Habitat/Herd Management Area
HMAP	Herd Management Area Plan
HMP	Habitat Management Plan
IBLA	Interior Board of Land Appeals
JTNP	Joshua Tree National Park
LWCF	Land and Water Conservation Fund
MFP	Management Framework Plan
MOA	Memorandum of Agreement
MOG	Management Oversight Group
MOU	Memorandum of Understanding
MSA	Management Situation Analysis
MSCP	Multi-species Conservation Plan
MUC	Multiple-Use Classification
MWD	Metropolitan Water District of Souther California
NAAQS	National Ambient Air Quality Standards
NECO	Northern and Eastern Colorado Desert Plan
NEMO	Northern and Eastern Mojave Plan
NEPA	*National Environmental Policy Act of 1969*
NHPA	*National Historic Preservation Act of 1966*
NNL	National Natural Landmark
NOI	Notice of Intent
NPS	National Park Service
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
OHV	Off-Highway Vehicle
ONA	Outstanding Natural Areas
PFC	Proper Functioning Condition
PL	Public Law
RAMP	Recreation Activity/Area Management Plan
R&PP	Recreation and Public Purpose (Act)
RNA	Research Natural Area
RPS	Rangeland Program Summary
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	Right-of-Way
RU	Recovery Units
SCS	Soils Conservation Service
S&G	Standards and Guidelines
SHPO	State Historic Preservation Office
SLC	State Lands Commission
SMARA	*Surface Mining and Reclamation Act of 1976*
T&E	Threatened and Endangered (Species)
UPA	Unusual Plant Assemblages
URTD	Upper Respiratory Tract Disease

US	United States
USC	United States Code
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USGS	United States Geologic Service
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USMC	United States Marine Corps
WH&B	Wild Horses and Burros
WHMA	Wildlife-Habitat Management Area

APPENDICES

for

Northern and Eastern Colorado Desert

Coordinated Management Plan

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D	Desert Tortoise Mitigation Measures
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G	Limitations on Cumulative New Surface Disturbance
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APPENDIX A

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3-10	Mineral Potential - Industrial
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H-1	Ecological Hot Spots
H-2	Plant Species Richness
H-3	Animal Species Richness
H-4	Largest Unfragmented Areas

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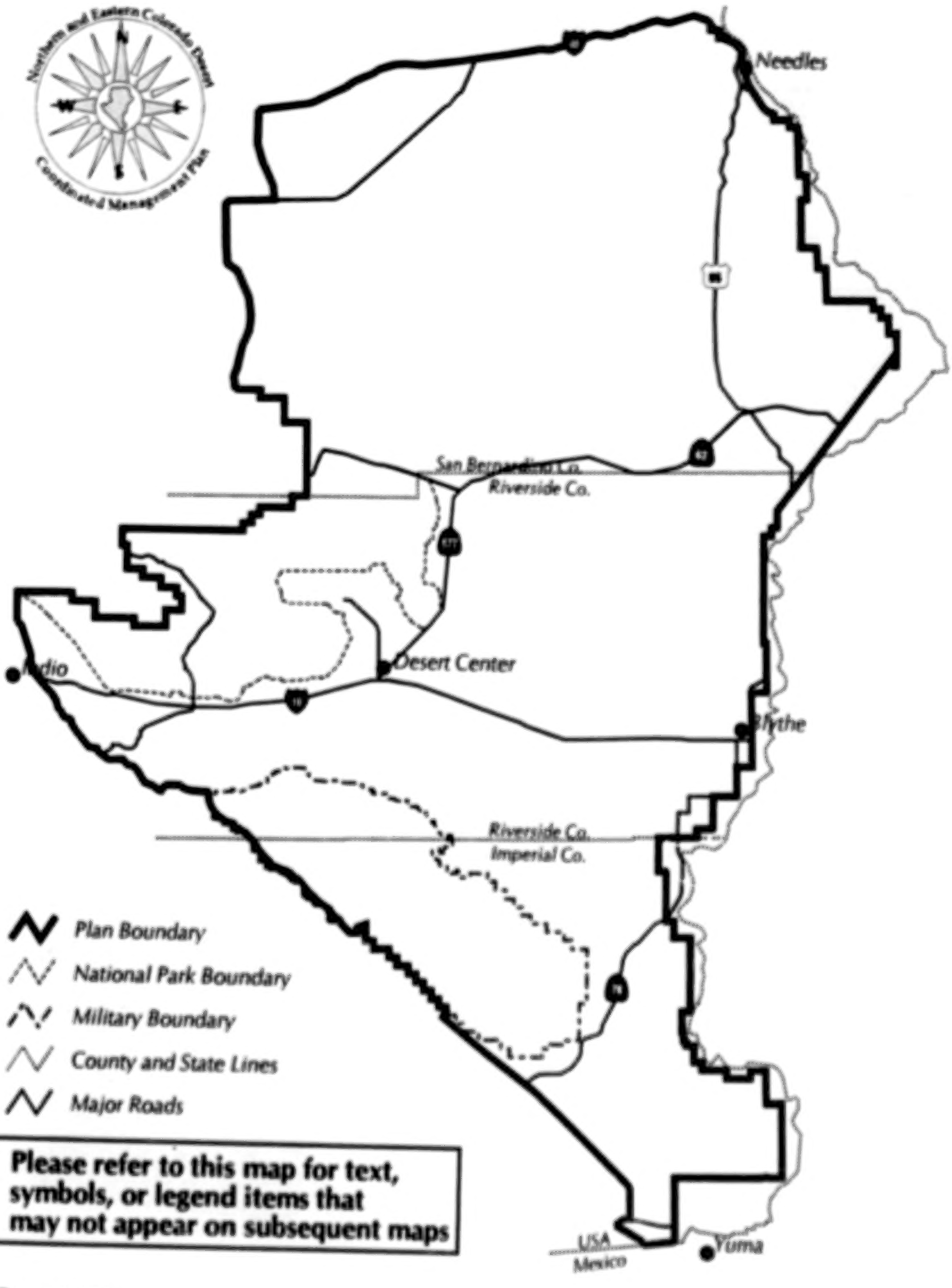
Base Map

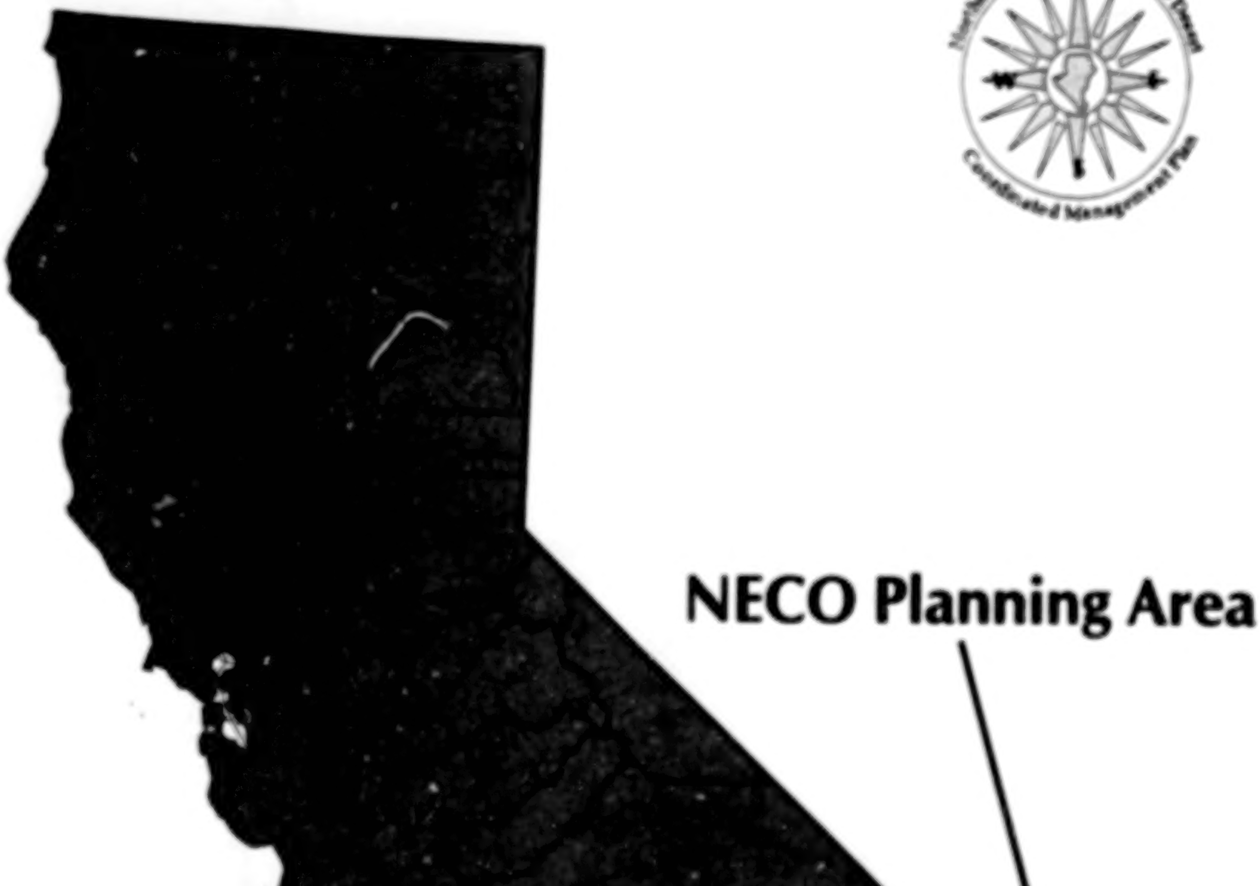


Please refer to this map for text, symbols, or legend items that may not appear on subsequent maps

Dec. 11, 200

Scale 1:1,120,000

Vicinity Map



Dec. 11, 2000

Map 1-1

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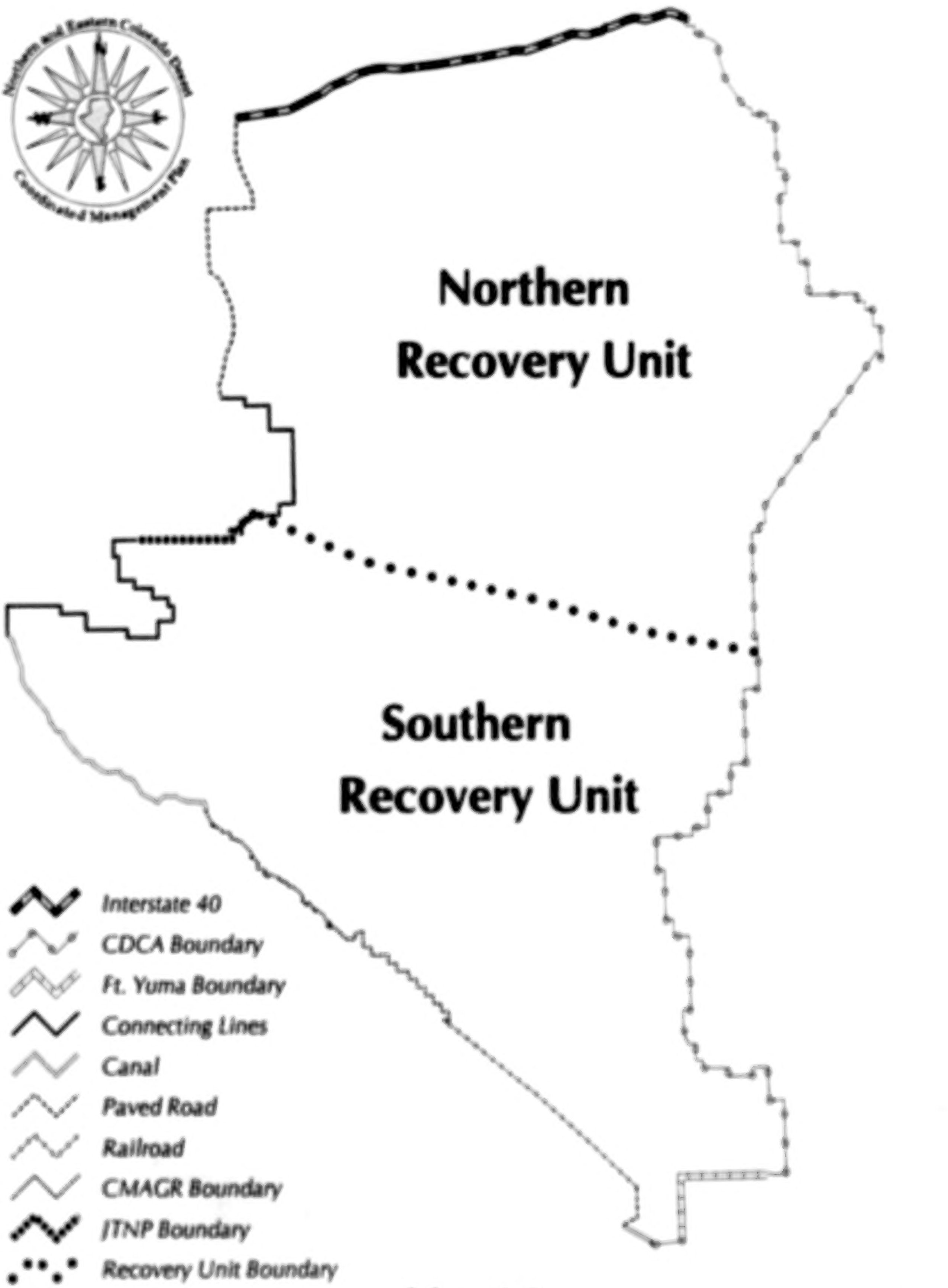
NECO Boundary and Tortoise Recovery Units

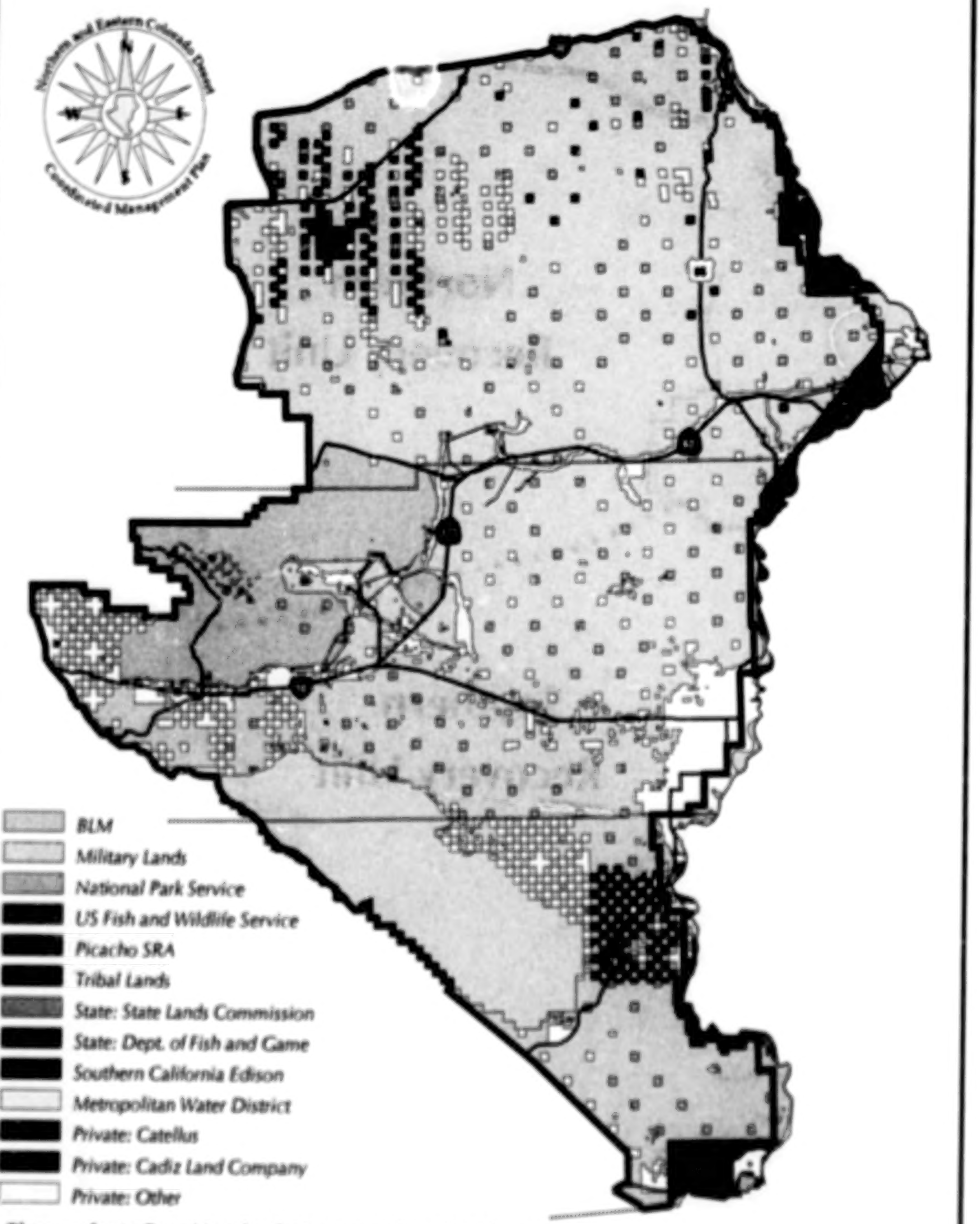


Dec. 11, 2000

Map 1-2

Scale 1:1,120,000

Land Ownership


Northern and Eastern Colorado Desert Coordinated Management Plan
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BLM
Military Lands
National Park Service
US Fish and Wildlife Service
Picacho SRA
Tribal Lands
State: State Lands Commission
State: Dept. of Fish and Game
Southern California Edison
Metropolitan Water District
Private: Catellus
Private: Cadiz Land Company
Private: Other

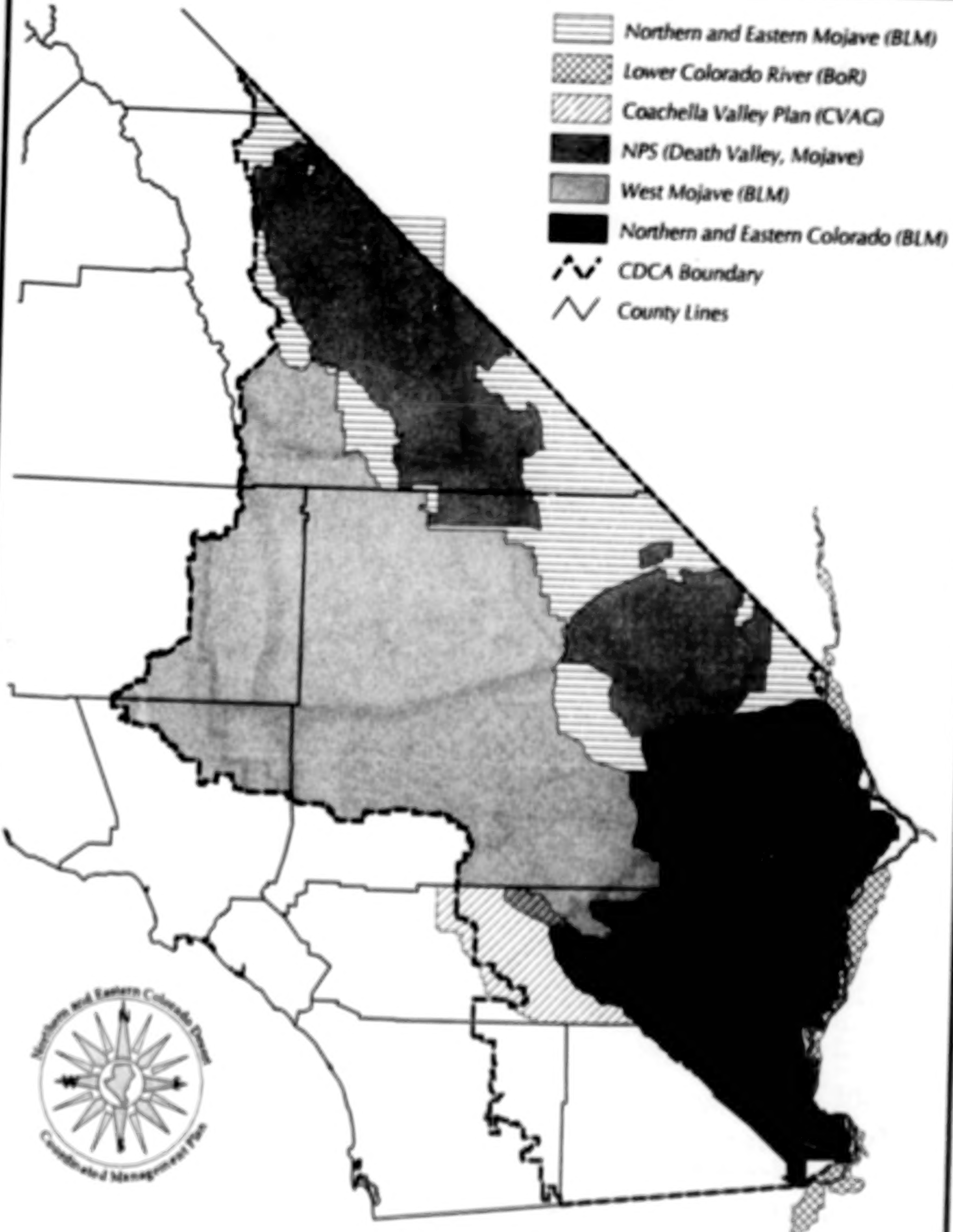
Please refer to Base Map for features not described here

Dec. 5, 2000

Map 1-3

Scale 1:1,120,000

Concurrent Desert Plans



▤ Northern and Eastern Mojave (BLM)
▩ Lower Colorado River (BoR)
▨ Coachella Valley Plan (CVAG)
■ NPS (Death Valley, Mojave)
▒ West Mojave (BLM)
■ Northern and Eastern Colorado (BLM)
CDCA Boundary
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Northern and Eastern Colorado Desert Coordinated Management Plan
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Dec. 5, 2000

Map 1-4

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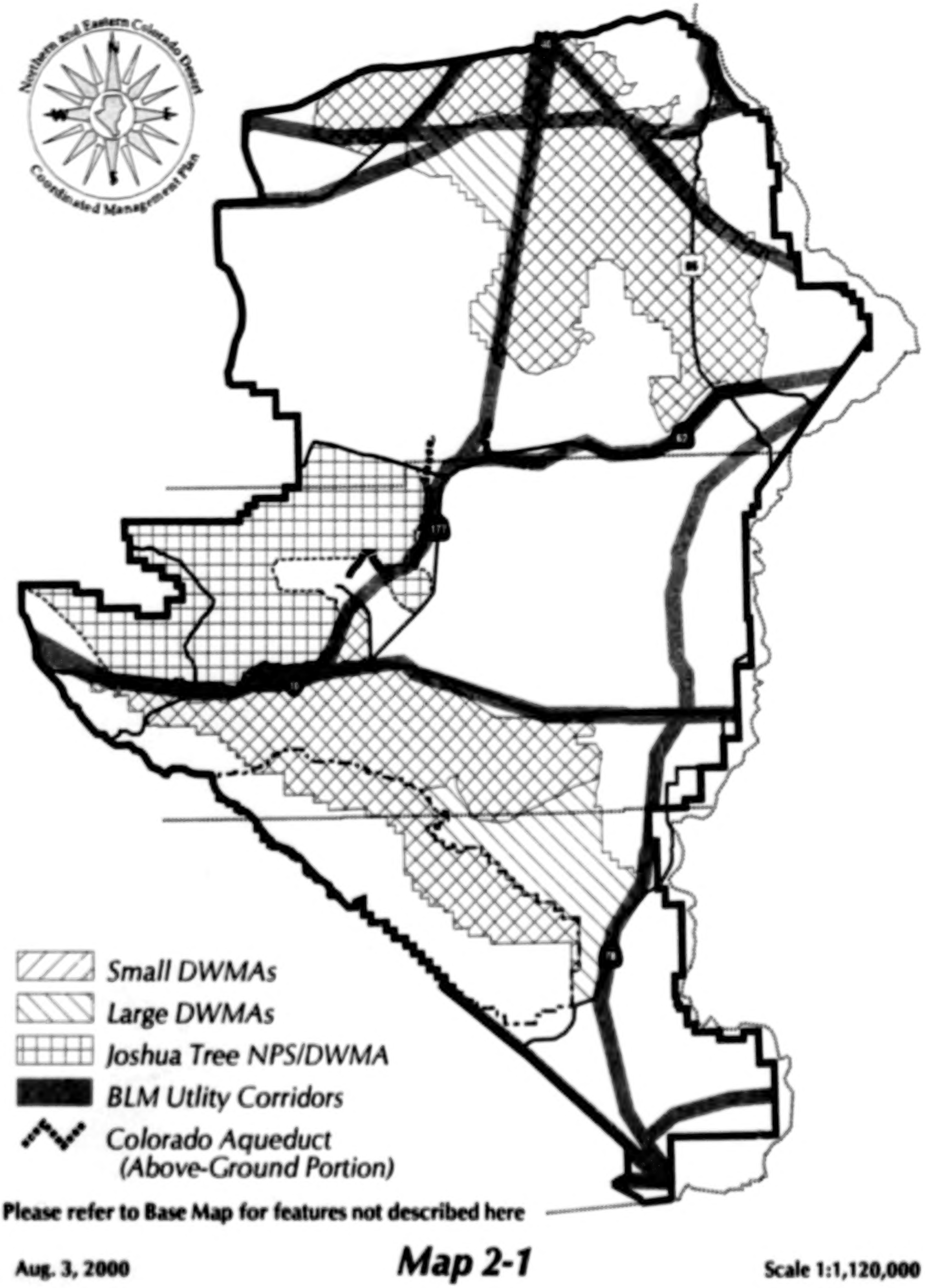
Utility Corridors



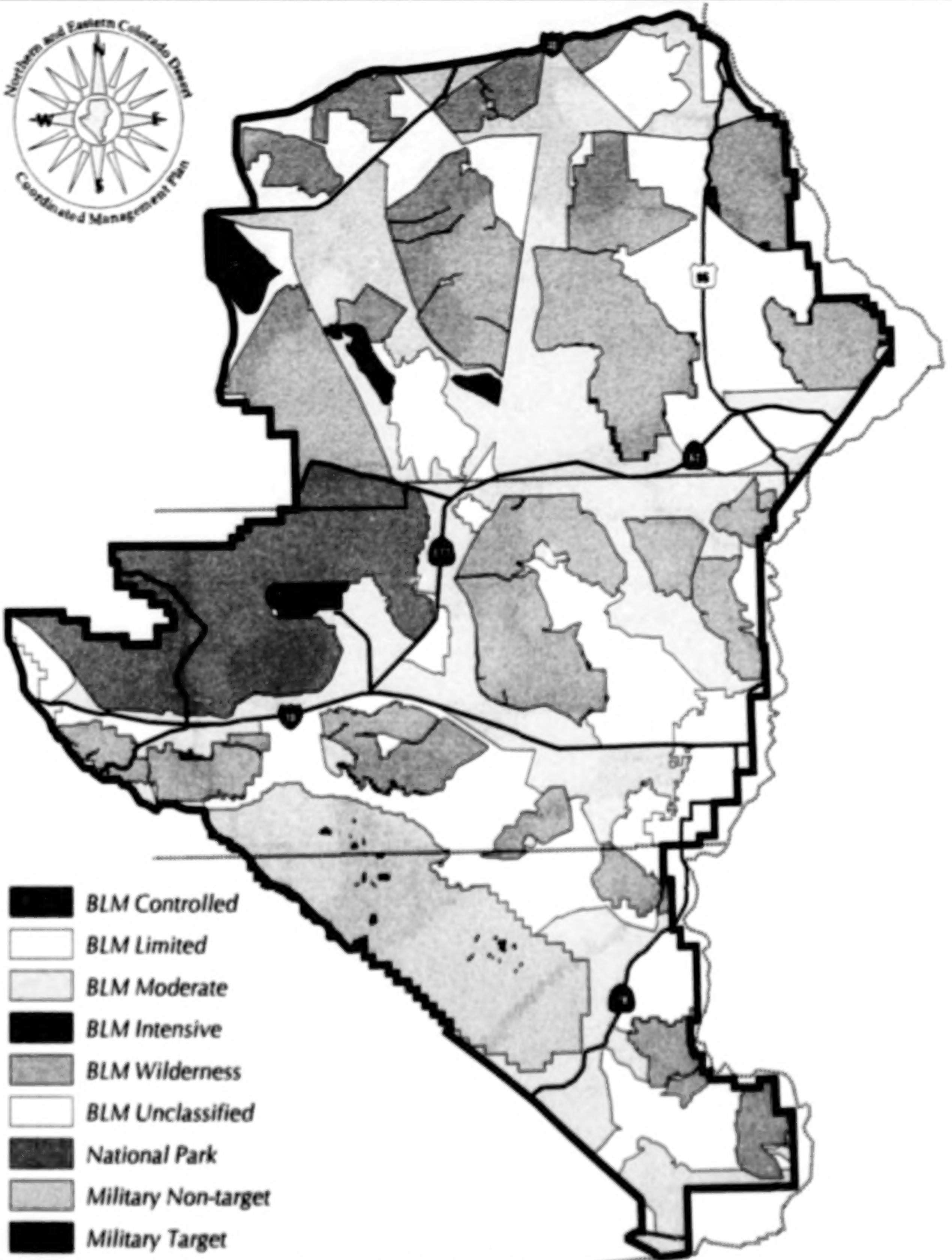
Please refer to Base Map for features not described here

Aug. 3, 2000

Map 2-1

Scale 1:1,120,000

Current BLM Multiple Use Classes



Please refer to Base Map for features not described here

Jan. 16, 2001

Map 2-2

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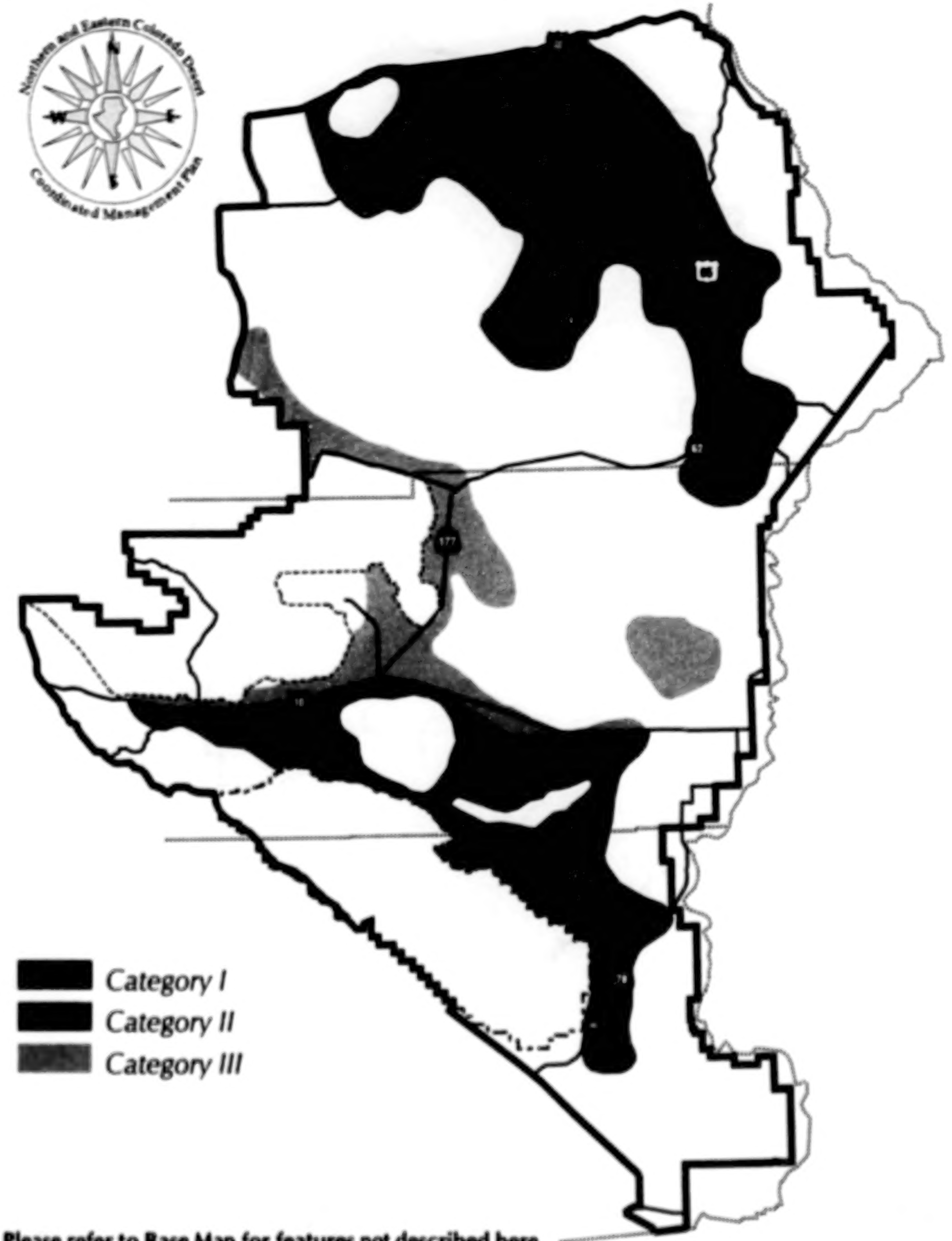
383

Current BLM Desert Tortoise Categories


Northern and Eastern Colorado Desert Coordinated Management Plan
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78
■ Category I
■ Category II
▨ Category III

Please refer to Base Map for features not described here

Dec. 5, 2000

Map 2-3

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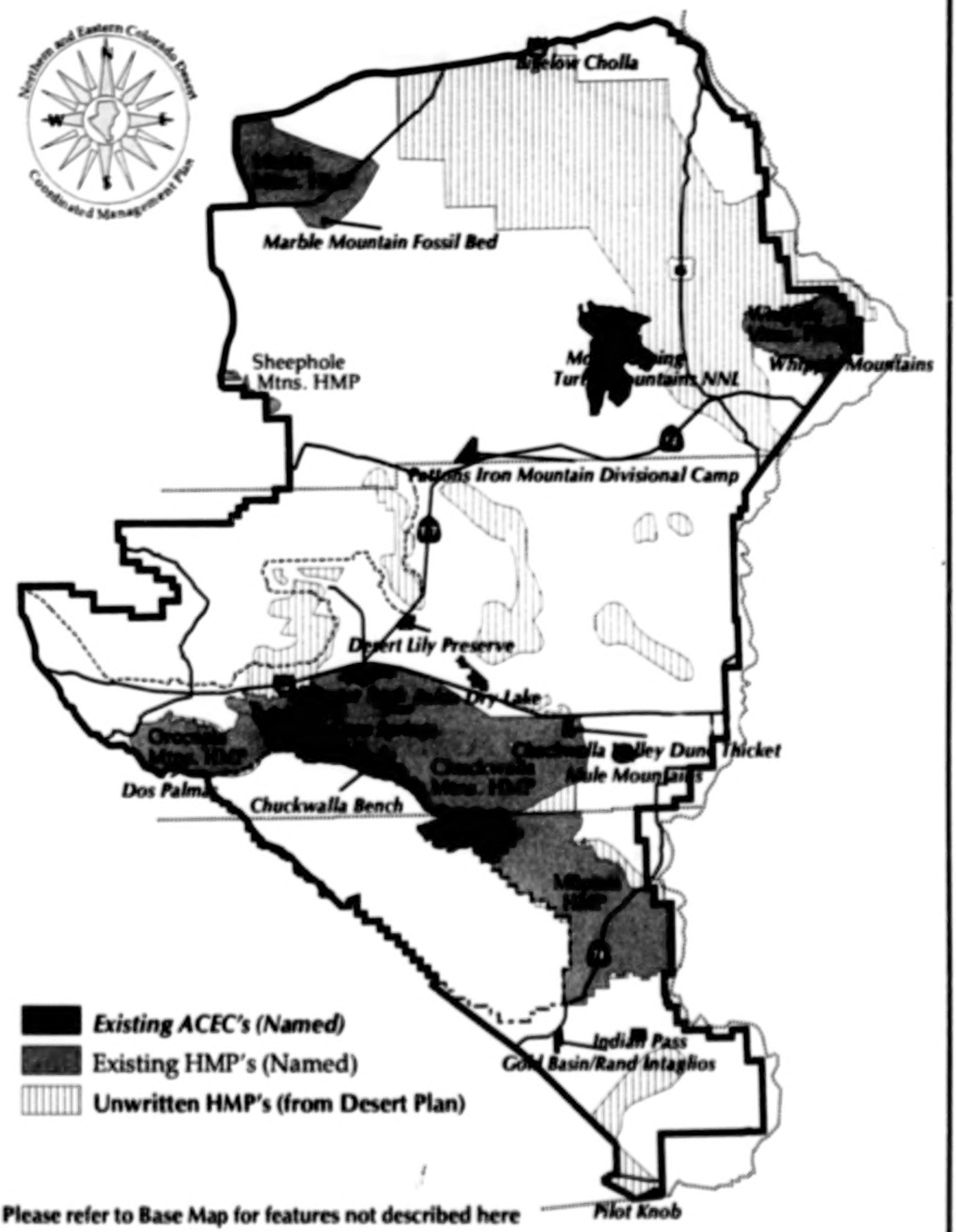
Current HMPs and ACECs


Northern and Eastern Colorado Desert Coordinated Management Plan
N
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Bigelow Cholla
Marble Mountain Fossil Bed
Sheephole Mtns. HMP
Turtle Mountains NNL
Whipple Mountains
Pattons Iron Mountain Divisional Camp
Desert Lily Preserve
Palen Dry Lake
Orocopia Mtns. HMP
Chuckwalla Valley Dune Thicket
Mule Mountains
Chuckwalla Mtns. HMP
Dos Palmas
Chuckwalla Bench
Milpitas HMP
Indian Pass
Gold Basin/Rand Intaglios
Pilot Knob
■ Existing ACEC's (Named)
▨ Existing HMP's (Named)
▥ Unwritten HMP's (from Desert Plan)

Please refer to Base Map for features not described here

Dec. 5, 2000

Map 2-4

Scale 1:1,120,000

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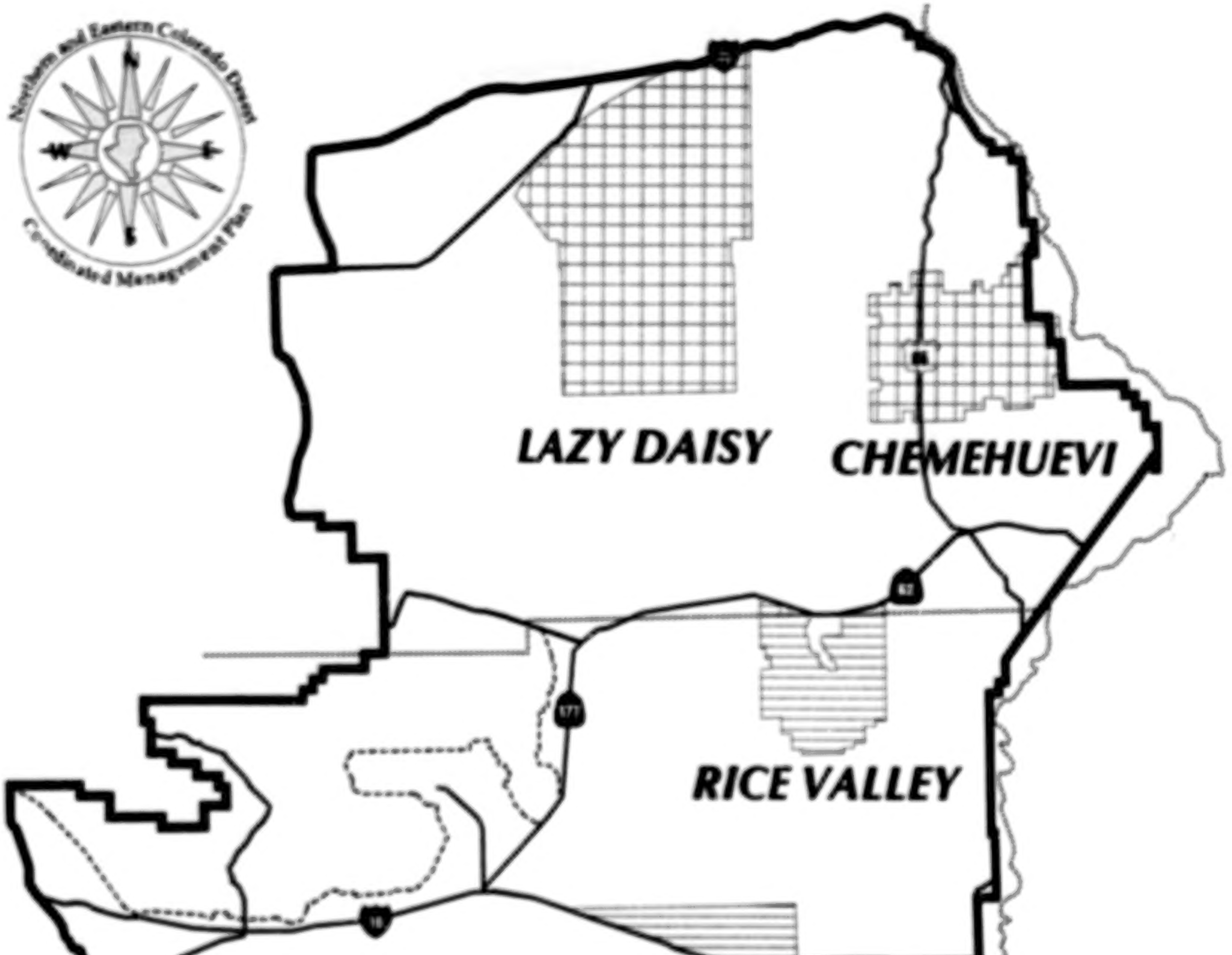
Current Grazing Management



Please refer to Base Map for features not described here

Jan. 16, 2001

Map 2-5

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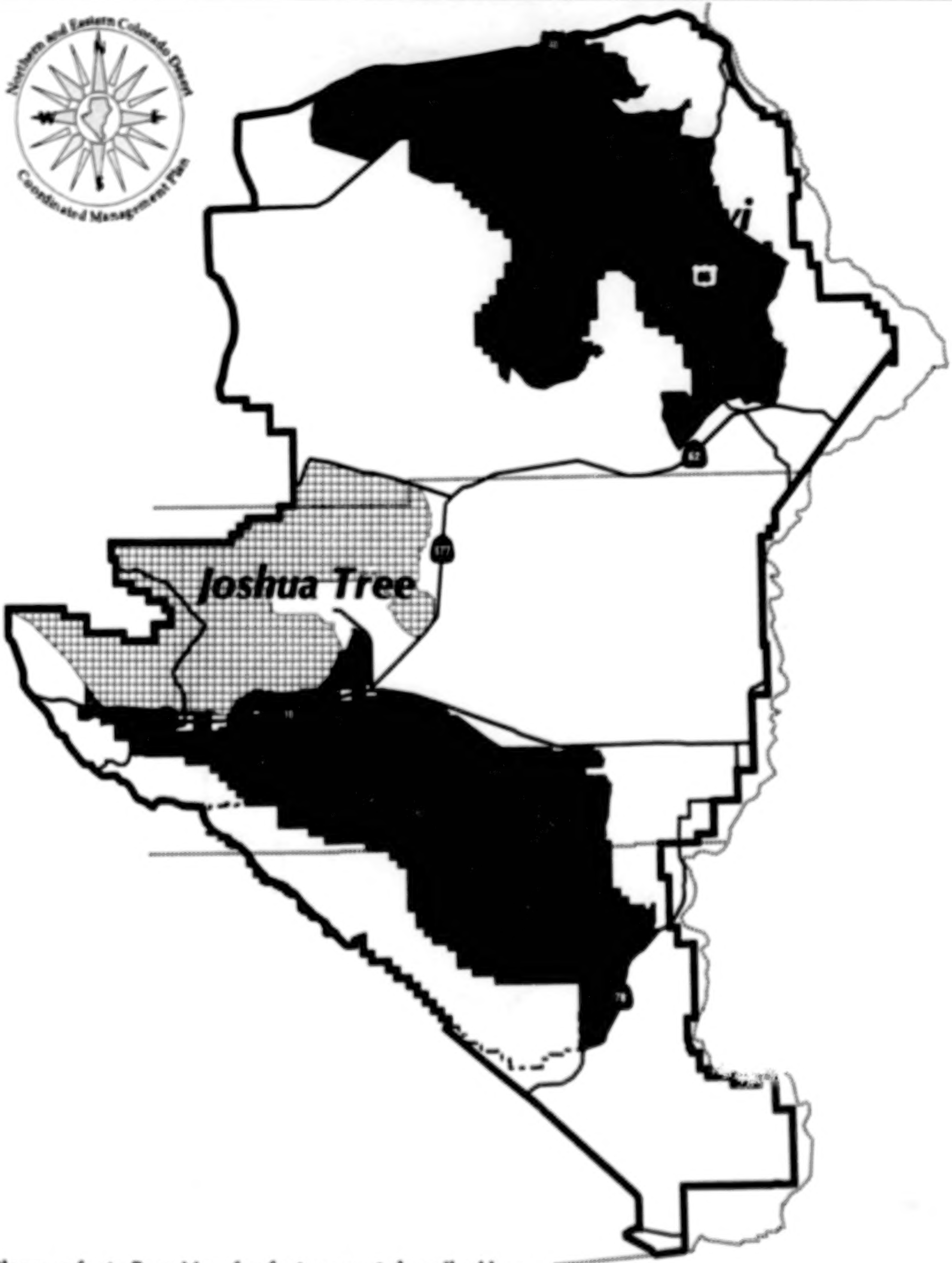
38C

Preferred/Large DWMA Alternative
DWMAs


Northern and Eastern Colorado Desert
Coordinated Management Plan
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Please refer to Base Map for features not described here

Jan. 16, 2001

Map 2-6

Scale 1:1,120,000

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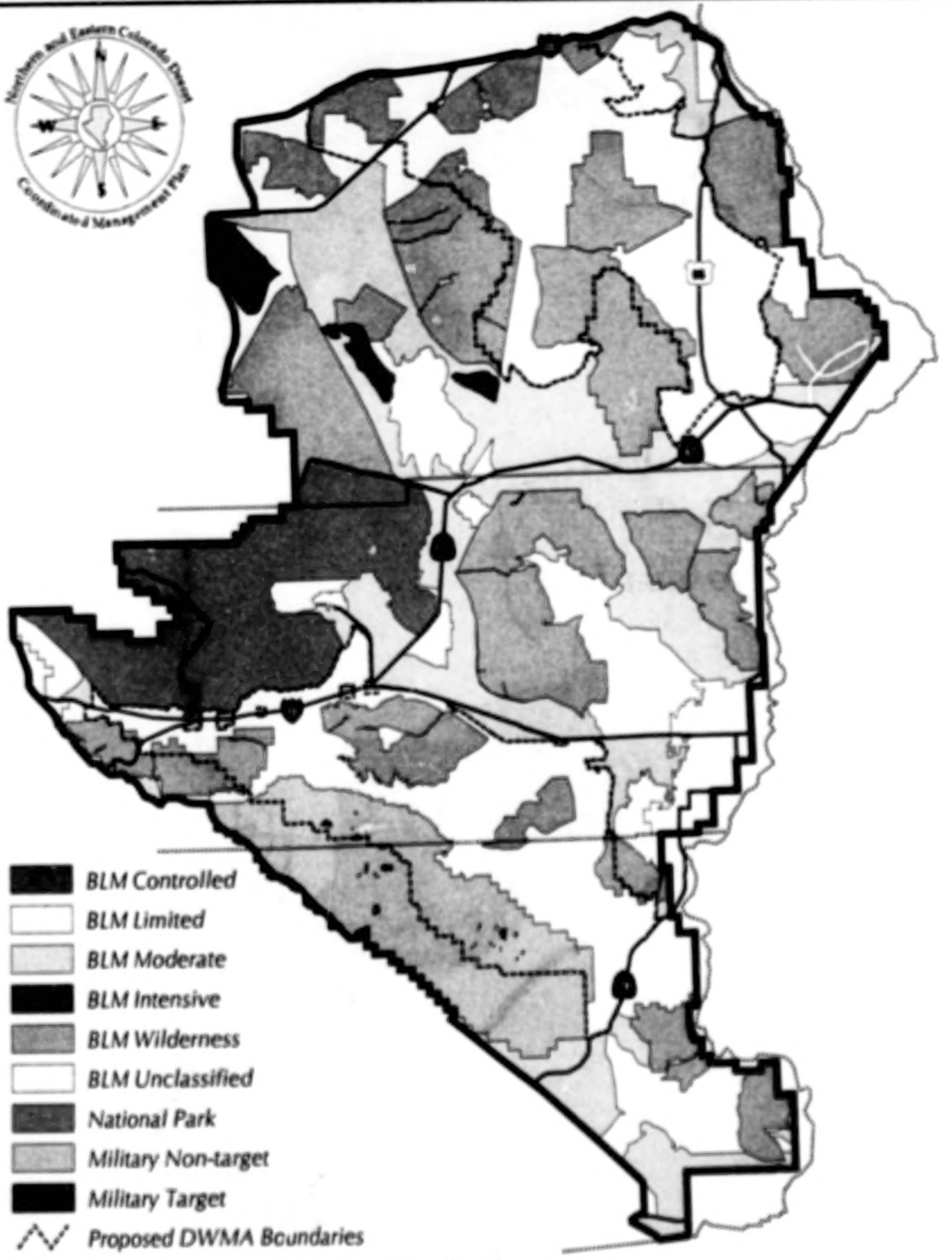
Preferred/Large DWMA Alternative
BLM Multiple Use Classes



Please refer to Base Map for features not described here

Jan. 16, 2001

Map 2-7

Scale 1:1,120,000

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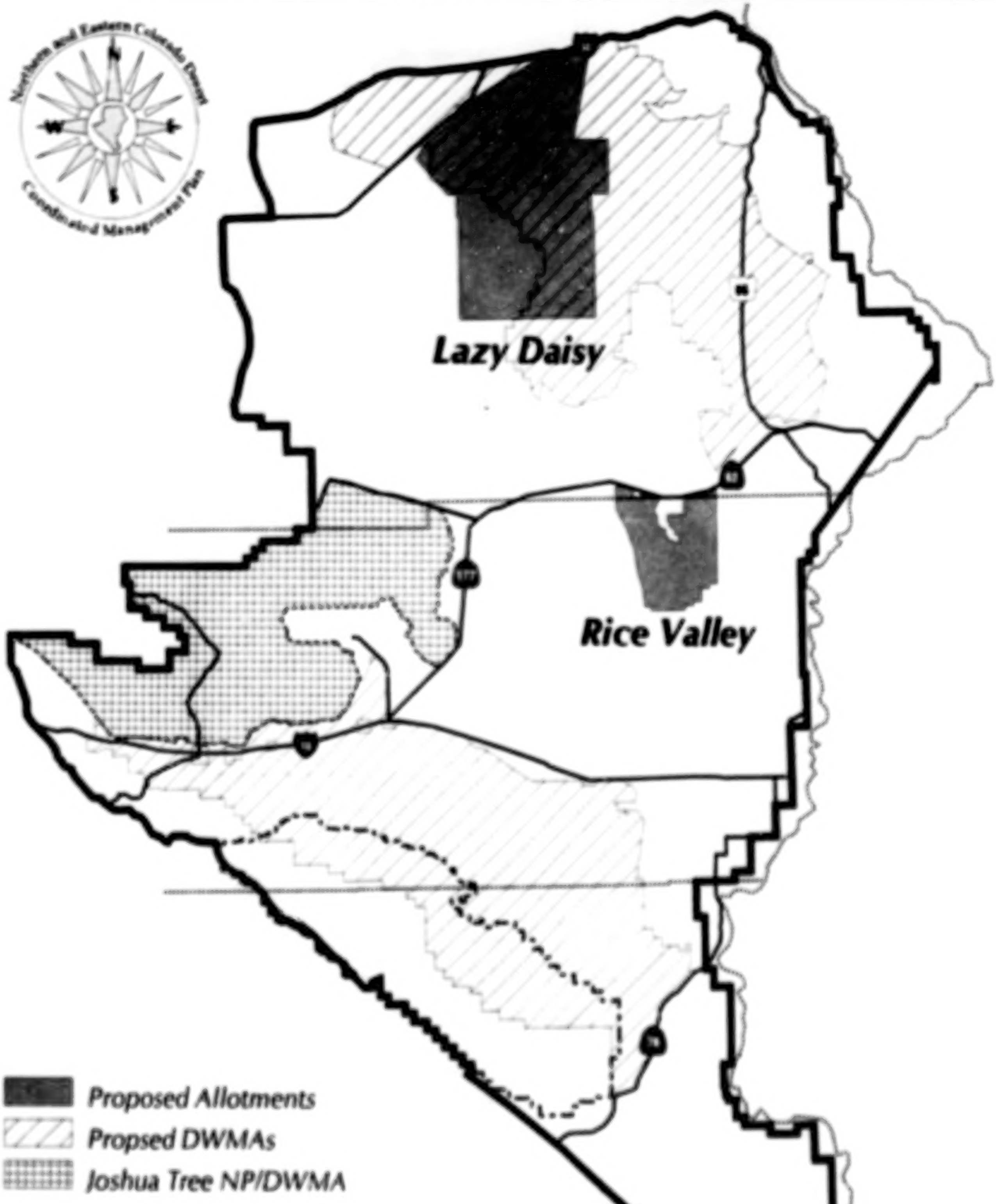
Preferred/Large DWMA Alternative
Grazing Management



Please refer to Base Map for features not described here

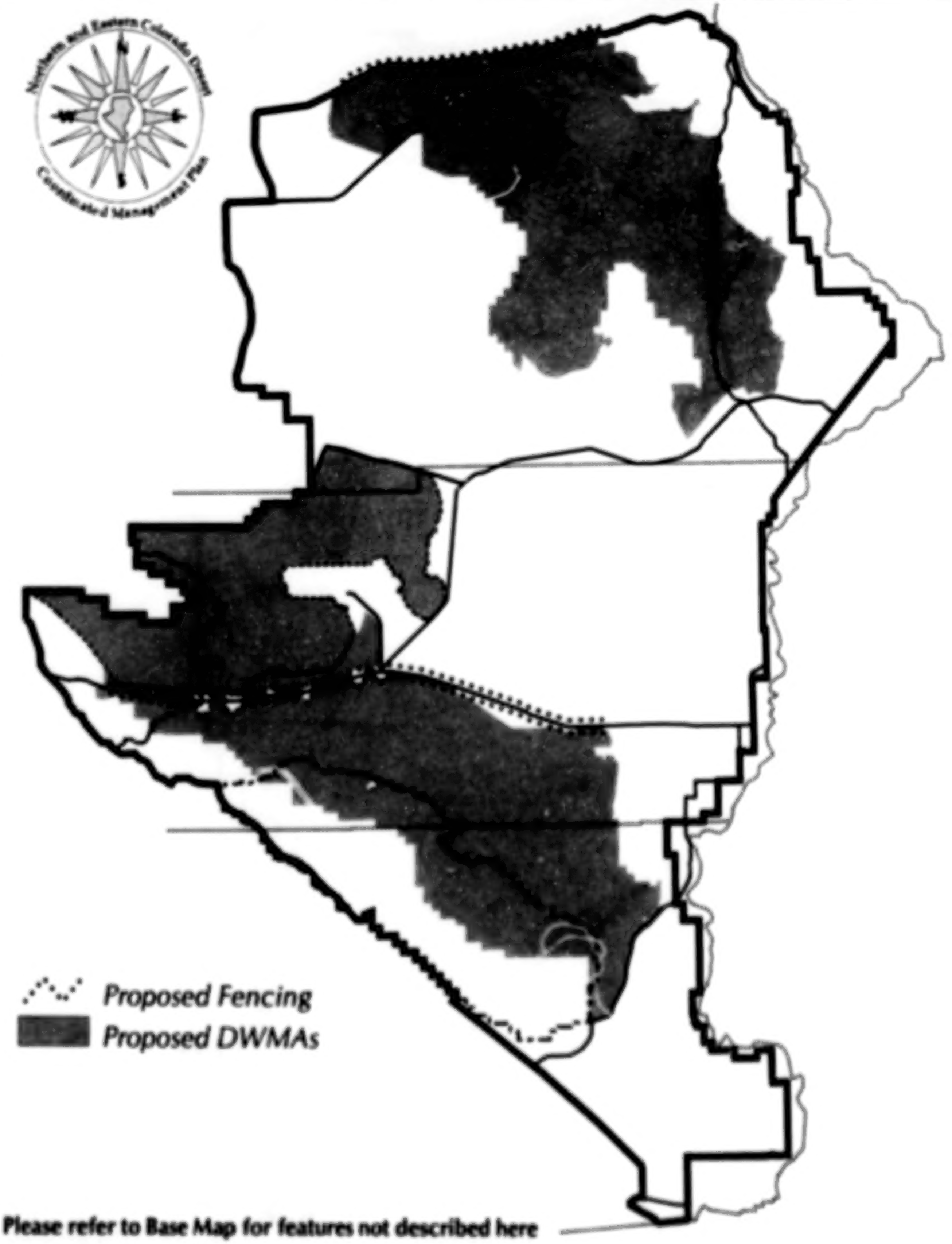
Jan. 16, 2001

Map 2-8

Scale 1:1,120,000

Preferred/Large DWMA Alternative
Tortoise Fencing

Northern and Eastern Colorado Desert
Coordinated Management Plan



Please refer to Base Map for features not described here

Jan. 16, 2001

Map 2-9

Scale 1:1,120,000

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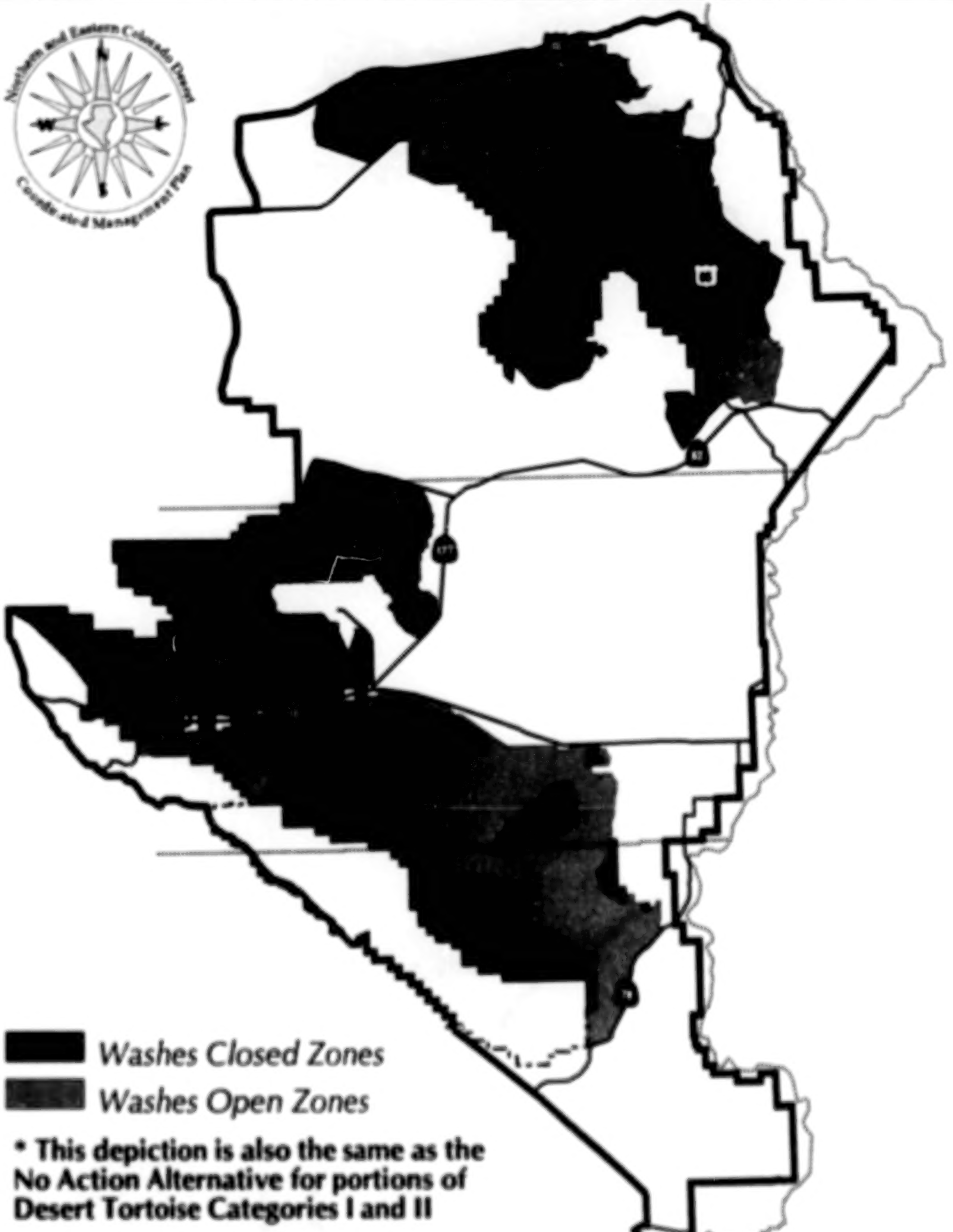
*Preferred/Large DWMA Alternative**
Routes of Travel Designations-Washes Closed Zones in DWMAs


Northern and Eastern Colorado Desert
Coordinated Management Plan
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■ *Washes Closed Zones*

▨ *Washes Open Zones*

*** This depiction is also the same as the No Action Alternative for portions of Desert Tortoise Categories I and II**

Please refer to Base Map for features not described here

Dec. 5, 2000

Map 2-10

Scale 1:1,120,000

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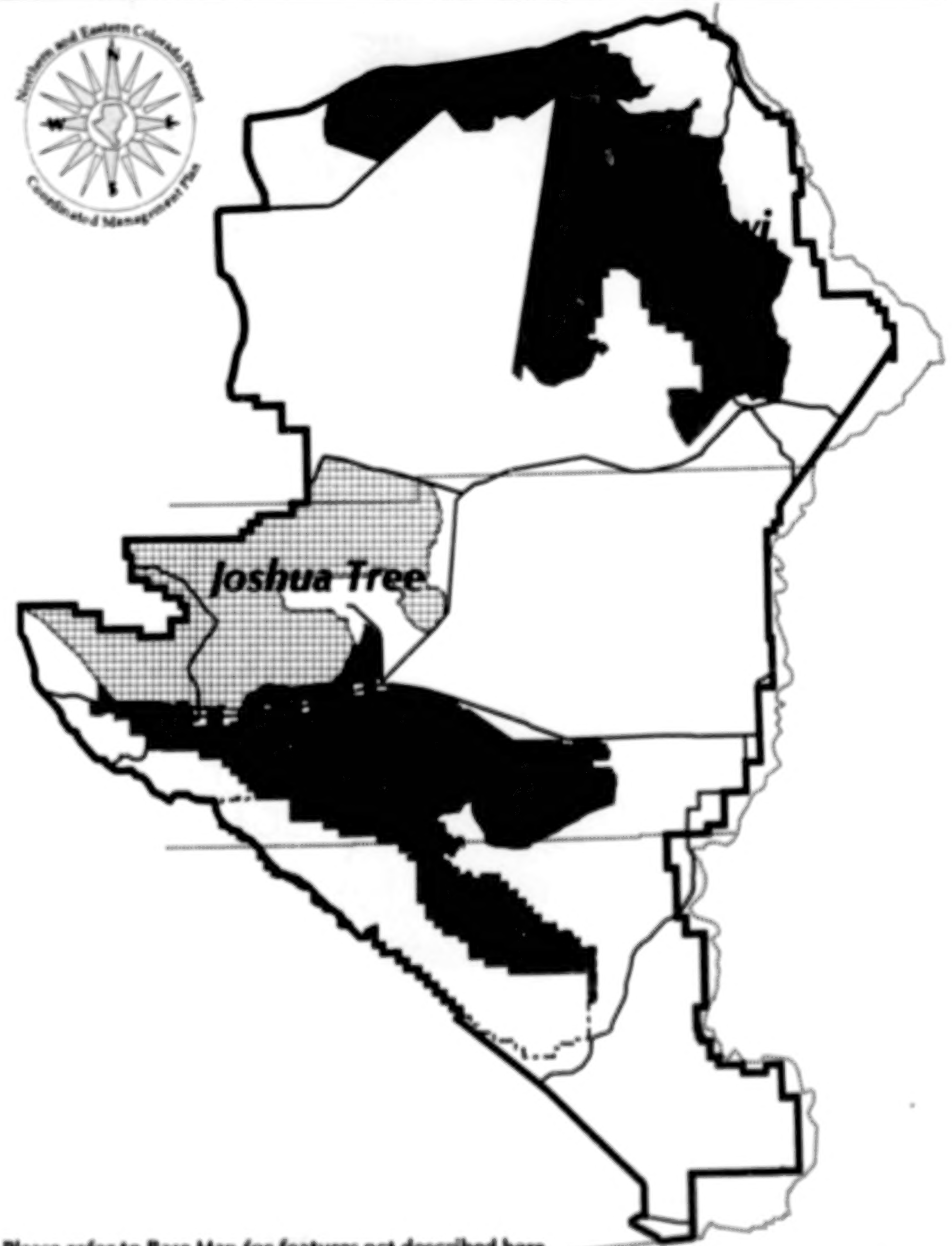
391

Small DWMA A & B Alternatives
DWMAs


Northern and Eastern Colorado Desert
Coordinated Management Plan
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Joshua Tree

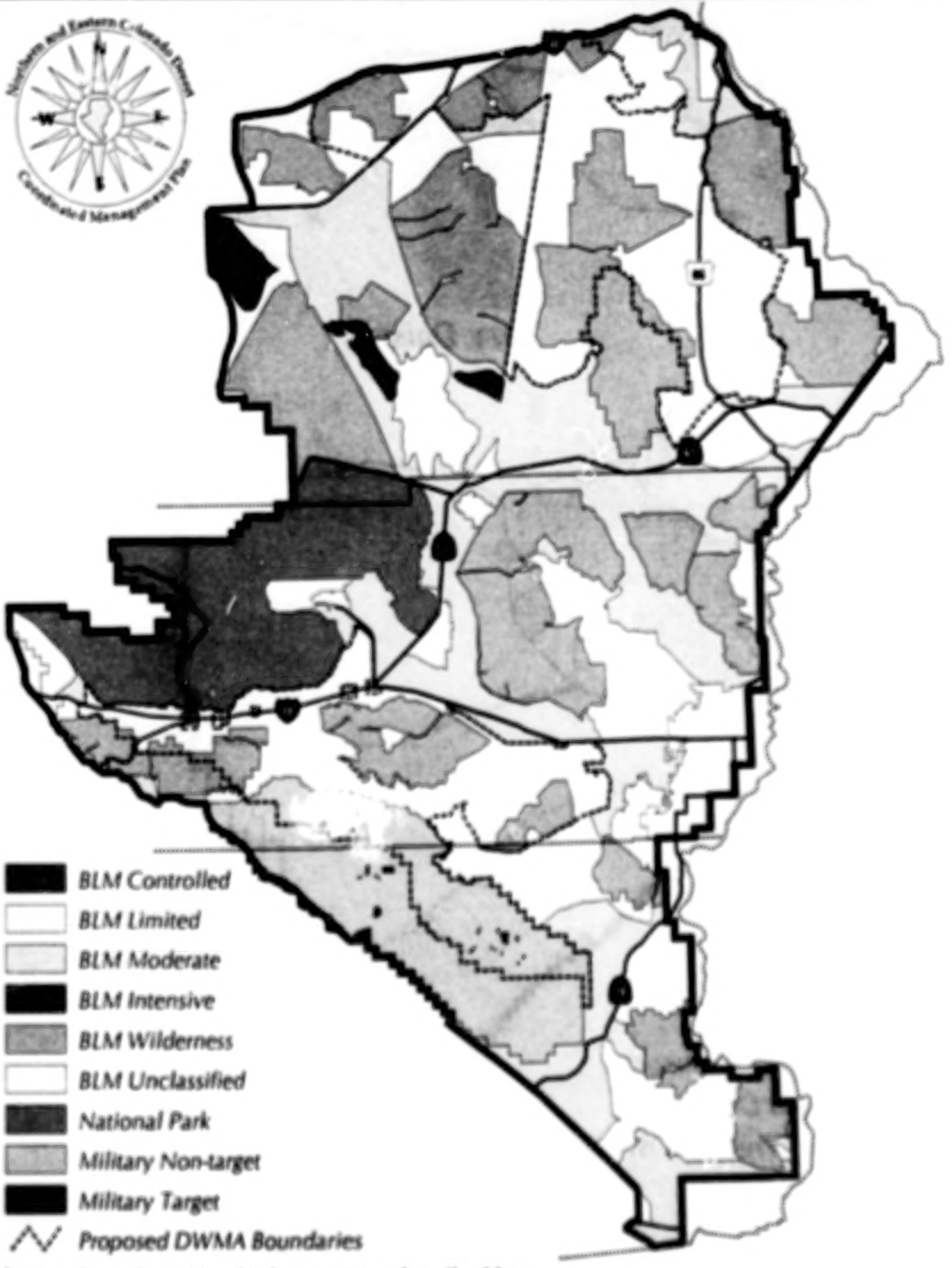
Please refer to Base Map for features not described here

Dec. 5, 2000

Map 2-11

Scale 1:1,120,000

Small DWMA A & B Alternatives
BLM Multiple Use Classes



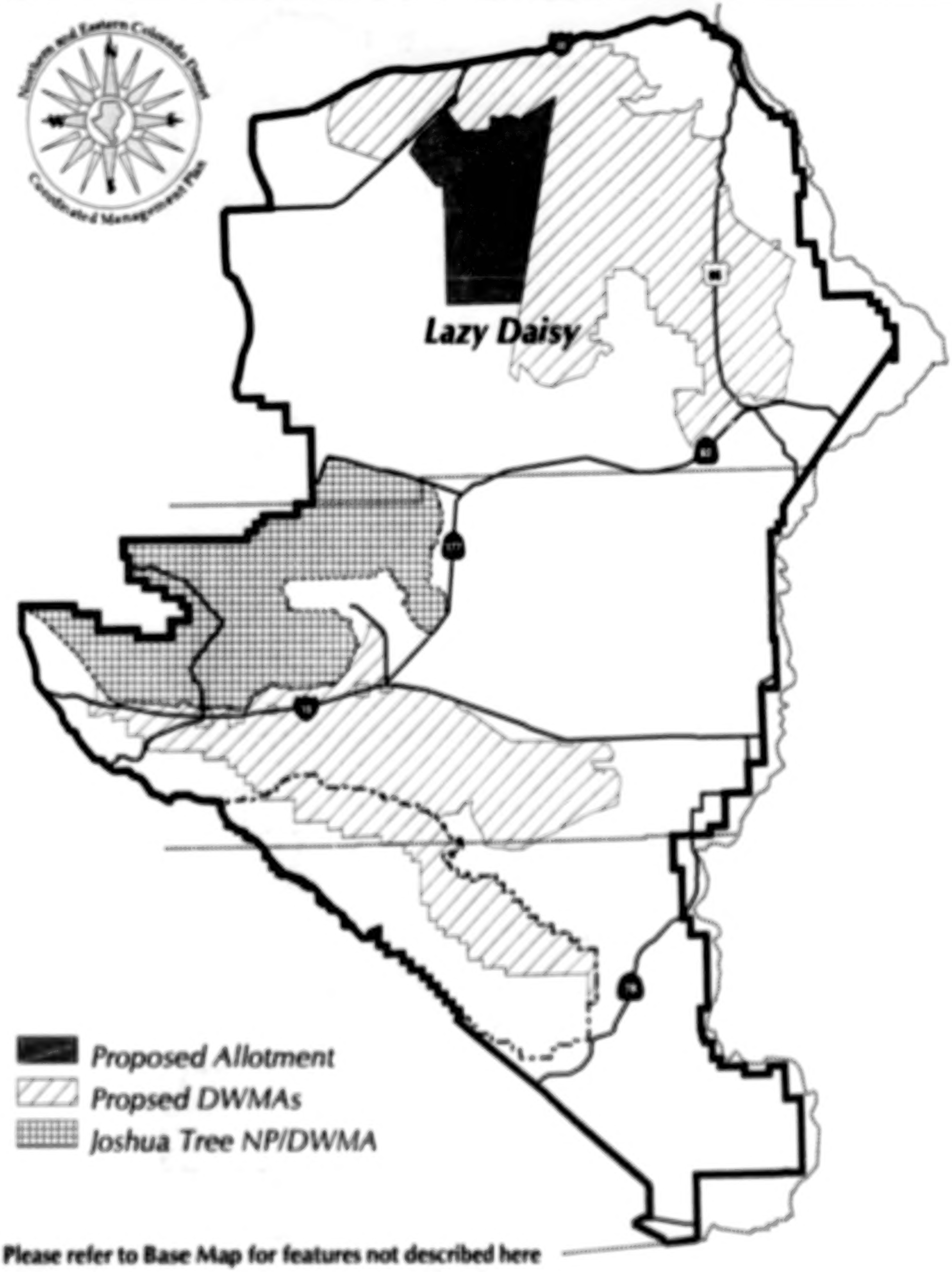
Please refer to Base Map for features not described here

Jan. 16, 2001

Map 2-12

Scale 1:1,120,000

Small DWMA A Alternative
Grazing Management


Northern and Eastern Colorado Desert
Coordinated Management Plan
Lazy Daisy
Proposed Allotment
Propsed DWMAs
Joshua Tree NP/DWMA

Please refer to Base Map for features not described here

Dec. 8, 2000

Map 2-13

Scale 1:1,120,000

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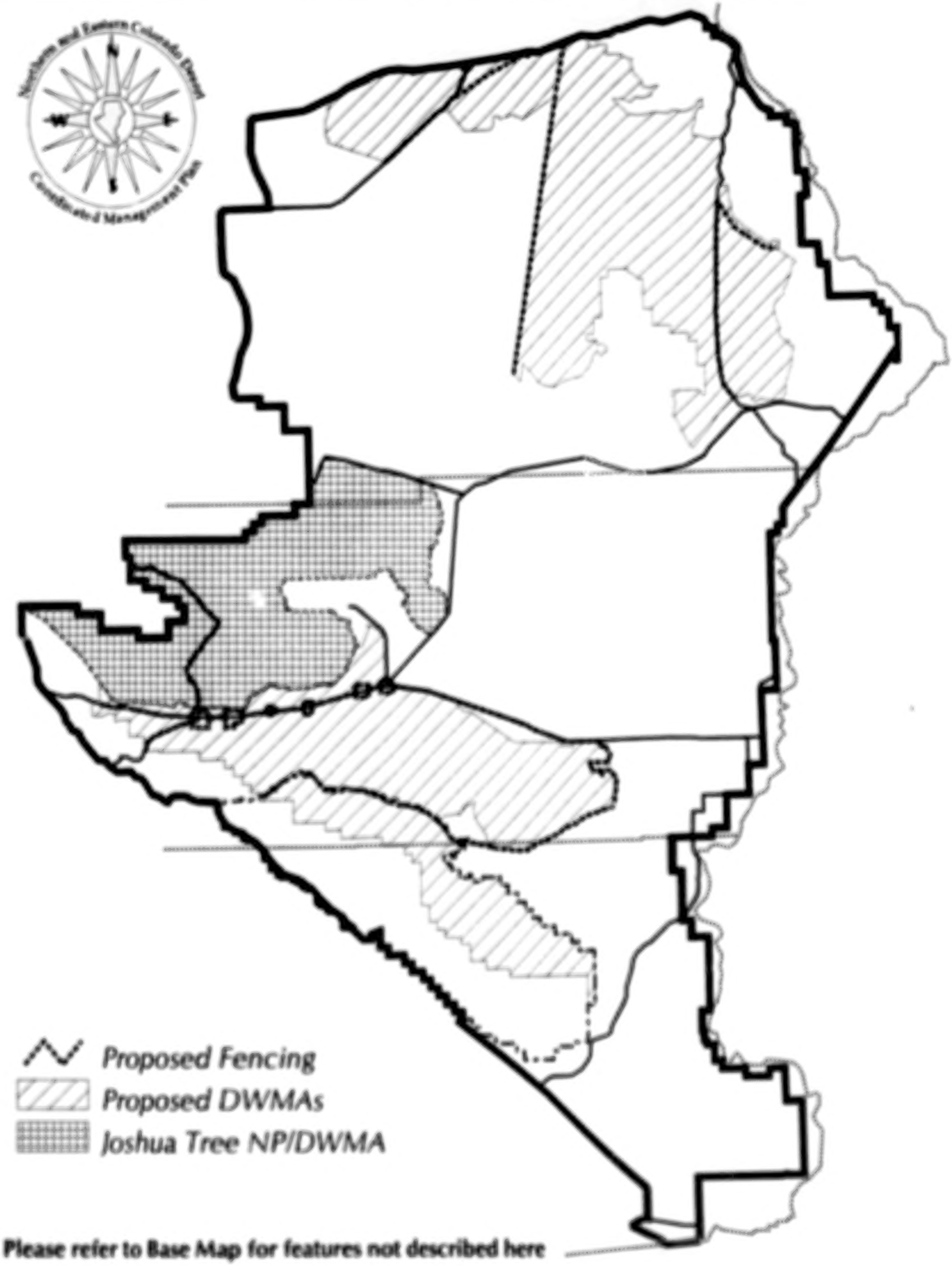
394

Small DWMA A Alternative
Tortoise Fencing



Please refer to Base Map for features not described here

Dec. 8, 2000

Map 2-14

Scale 1:1,120,000

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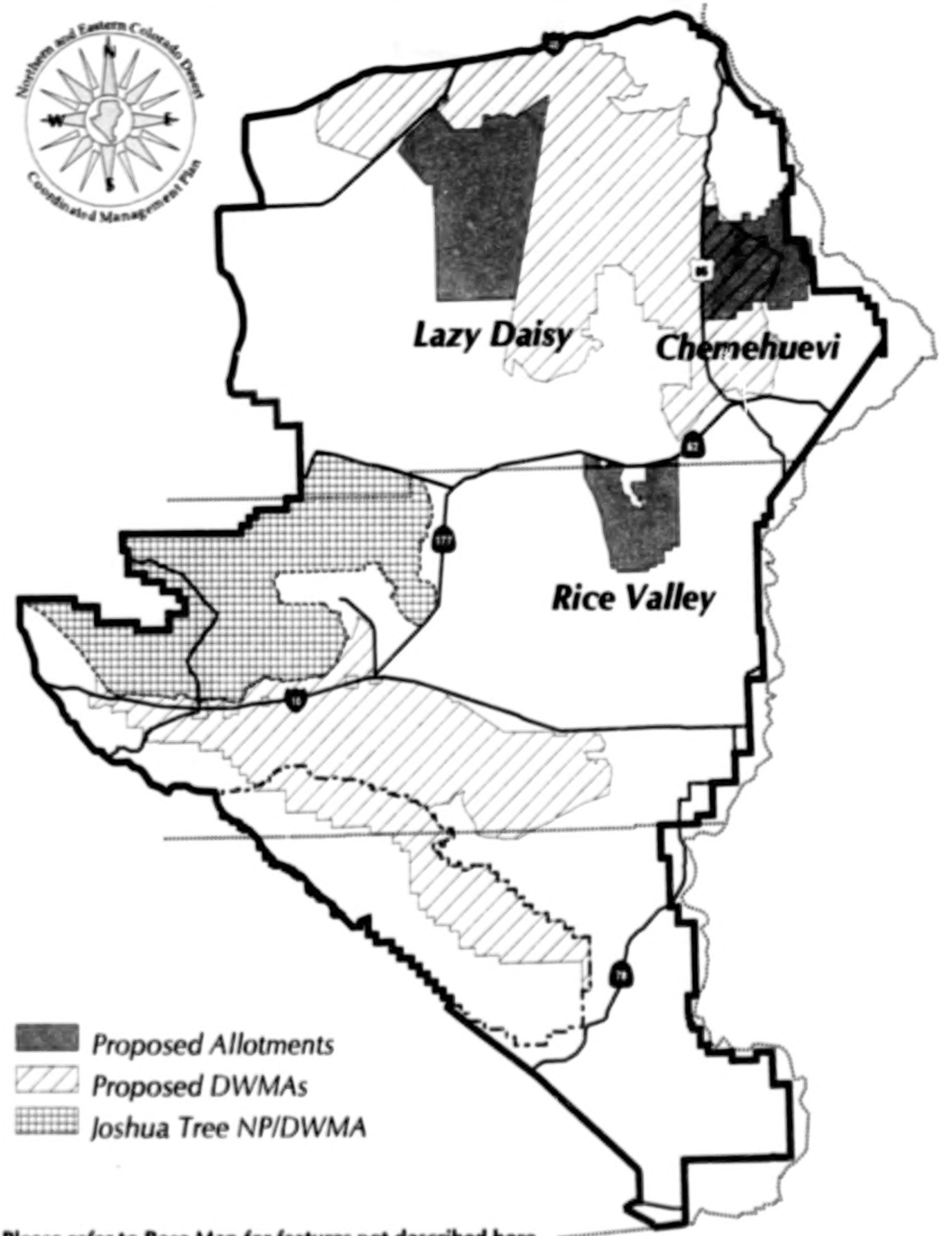
Small DWMA B Alternative
Grazing Management



Please refer to Base Map for features not described here

Dec. 8, 2000

Map 2-15

Scale 1:1,120,000

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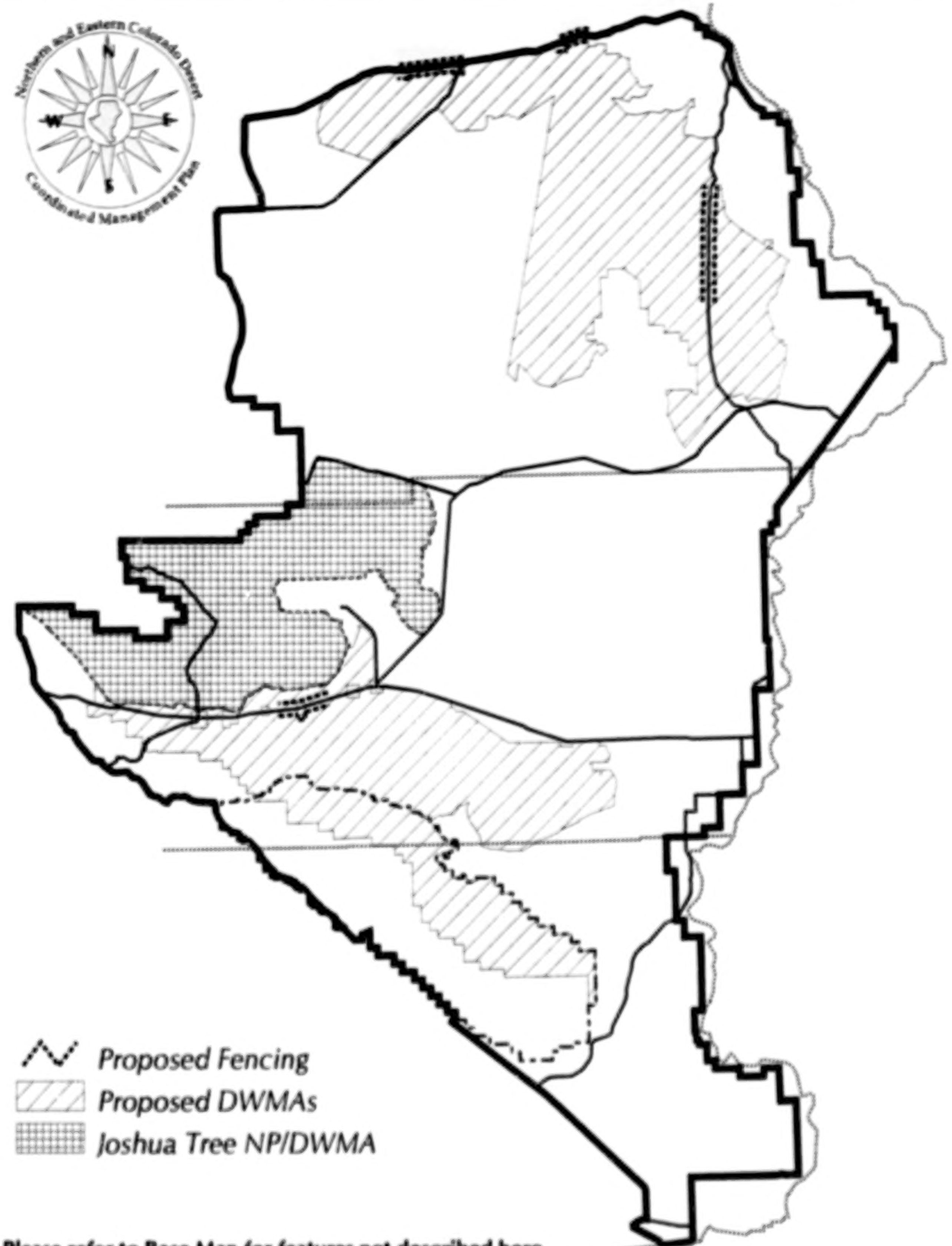
Small DWMA B Alternative
Tortoise Fencing


Northern and Eastern Colorado Desert
Coordinated Management Plan
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Proposed Fencing
Proposed DWMAs
Joshua Tree NP/DWMA

Please refer to Base Map for features not described here

Dec. 8, 2000

Map 2-16

Scale 1:1,120,000

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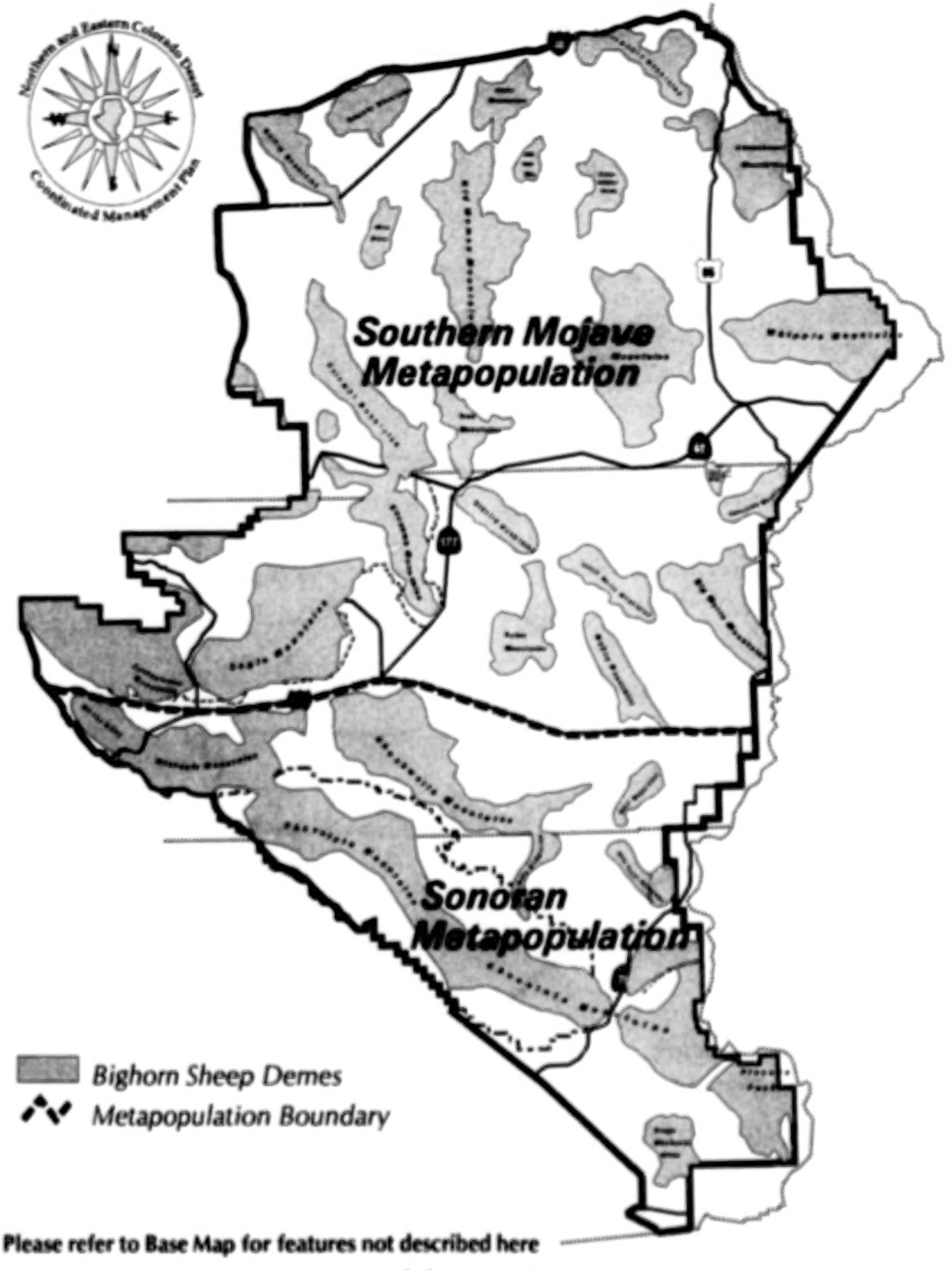
Bighorn Sheep Demes


Northern and Eastern Colorado Desert
Coordinated Management Plan
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Southern Mojave Metapopulation
Sonoran Metapopulation
Bighorn Sheep Demes
Metapopulation Boundary

Please refer to Base Map for features not described here

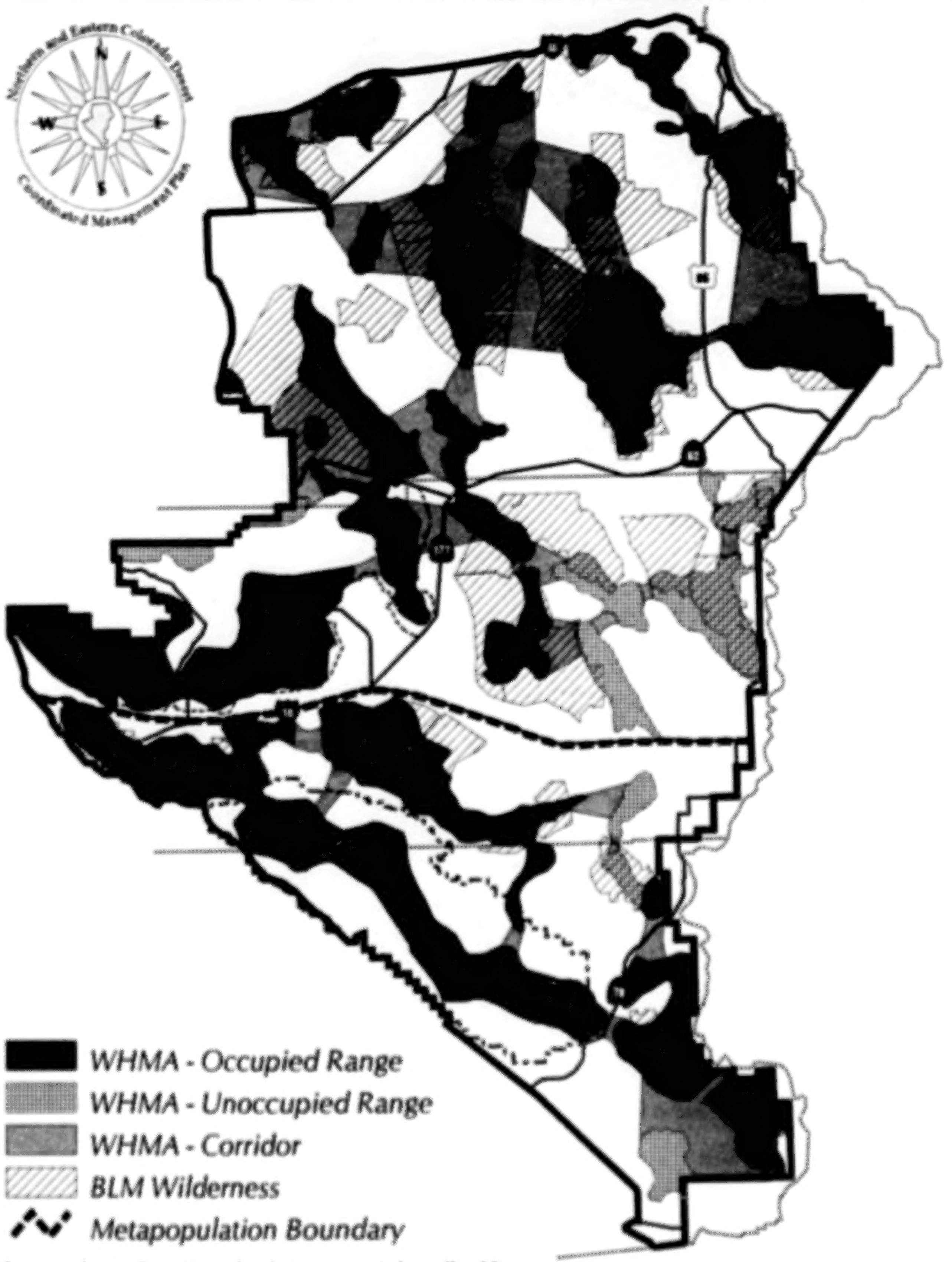
Dec. 13, 2000

Map 2-17

Scale 1:1,120,000

Preferred/Large DWMA and Small DWMA A & B Alternatives

Bighorn Sheep WHMAs



Please refer to Base Map for features not described here

Dec. 13, 2000 ***Map 2-18*** **Scale 1:1,120,000**

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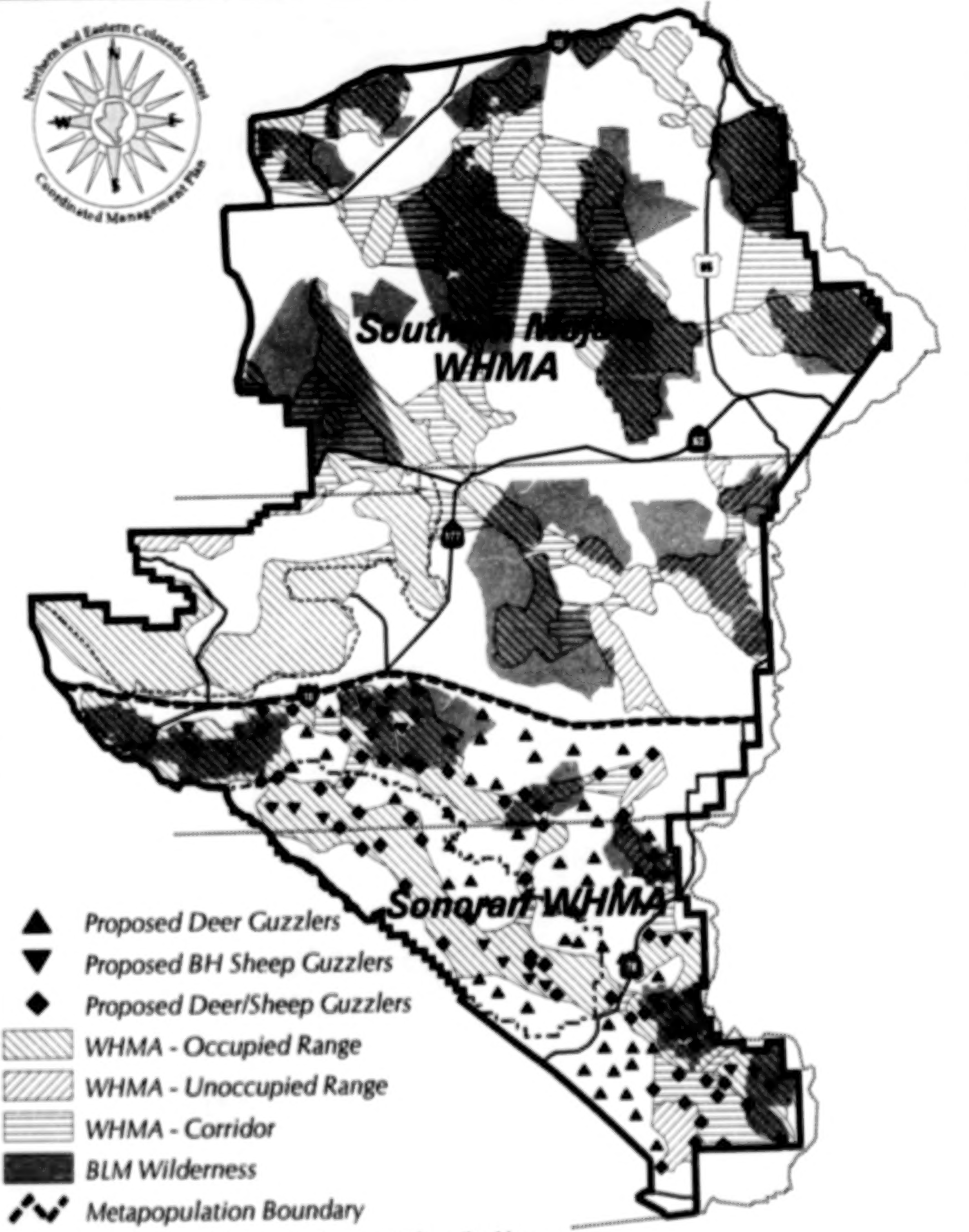
399

Preferred/Large DWMA and Small DWMA A Alternatives
New Artificial Waters for Bighorn Sheep and Deer



Please refer to Base Map for features not described here

Dec. 13, 2000

Map 2-19

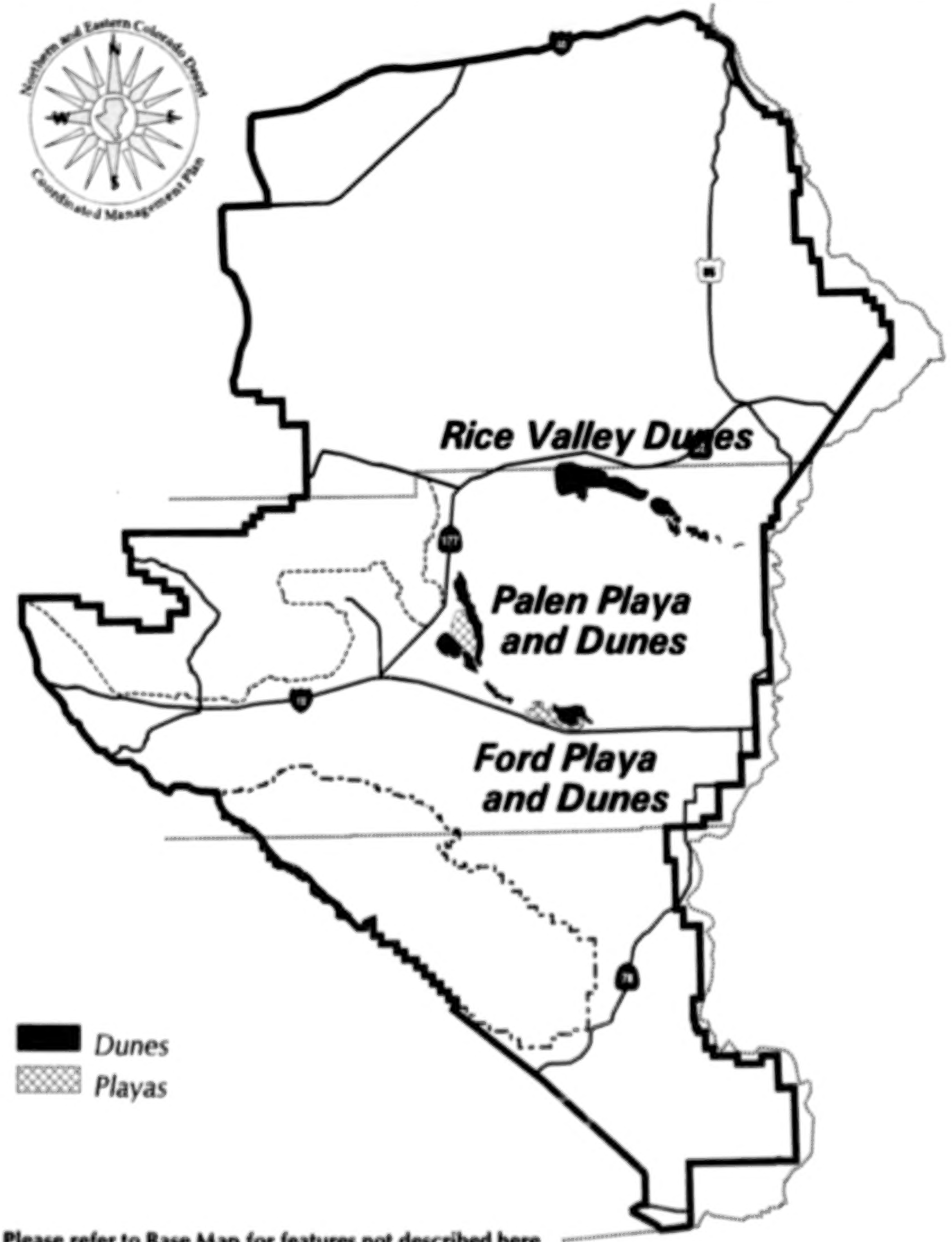
Scale 1:1,120,000

BEST COPY AVAILABLE

400

Preferred/Large DWMA and Small DWMA A & B Alternatives

Dunes and Playa Closures (Area Designations for Motor Vehicle Access)



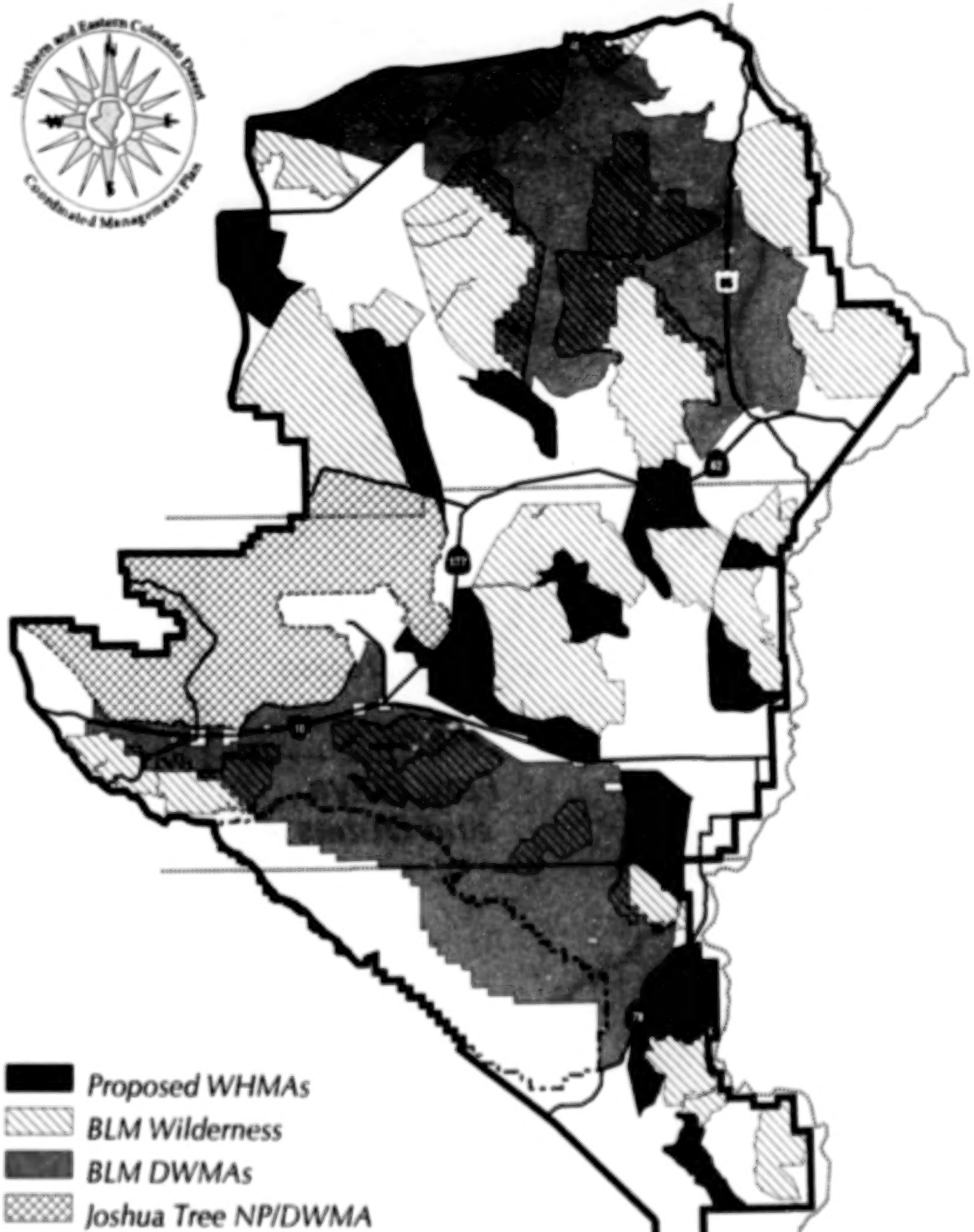
Please refer to Base Map for features not described here

Jan. 16, 2001

Map 2-20

Scale 1:1,120,000

Preferred/Large DWMA Alternative
Multi-Species WHMAs



Please refer to Base Map for features not described here

Jan. 2, 2001

Map 2-21

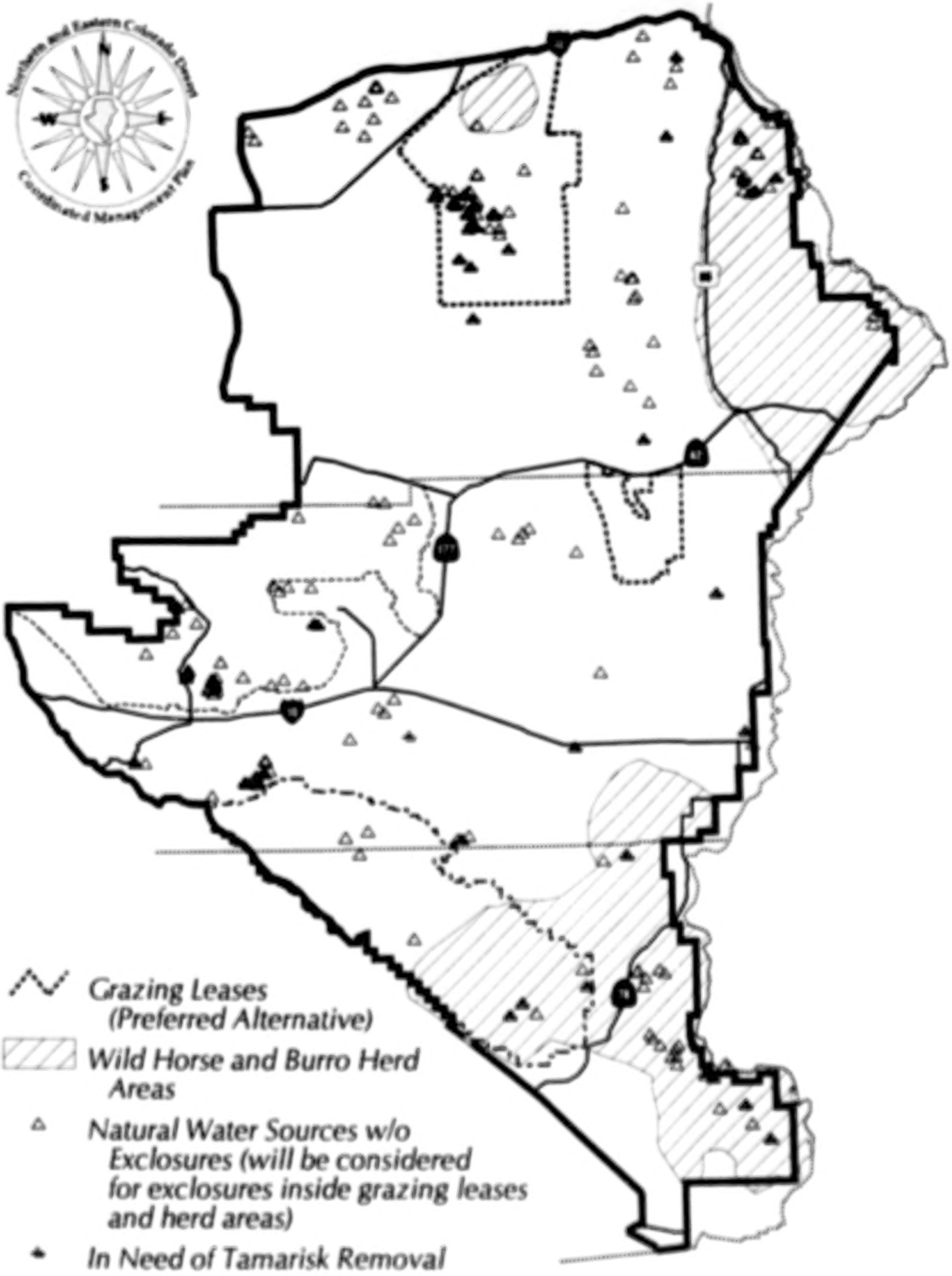
Scale 1:1,120,000

BEST COPY AVAILABLE

402

Preferred/Large DWMA and Small DWMA A & B Alternatives

Springs and Seeps Improvements

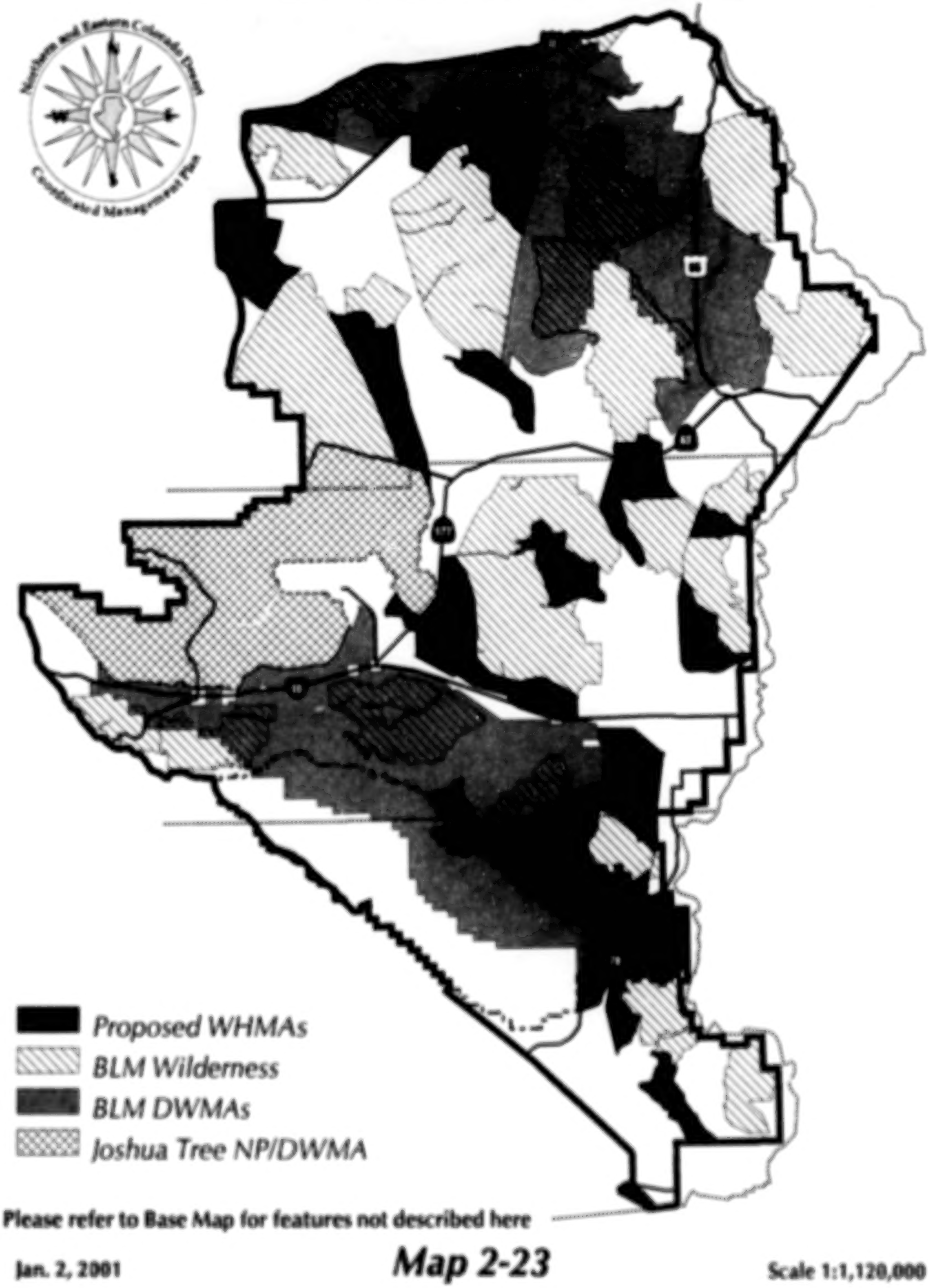

Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
Grazing Leases (Preferred Alternative)
▨ Wild Horse and Burro Herd Areas
△ Natural Water Sources w/o Exclosures (will be considered for exclosures inside grazing leases and herd areas)
▲ In Need of Tamarisk Removal

Jan. 2, 2001

Map 2-22

Scale 1:1,120,000

Small DWMA A Alternative
Multi-Species WHMAs


Northern and Eastern Colorado Desert Coordinated Management Plan
Proposed WHMAs
BLM Wilderness
BLM DWMAs
Joshua Tree NP/DWMA

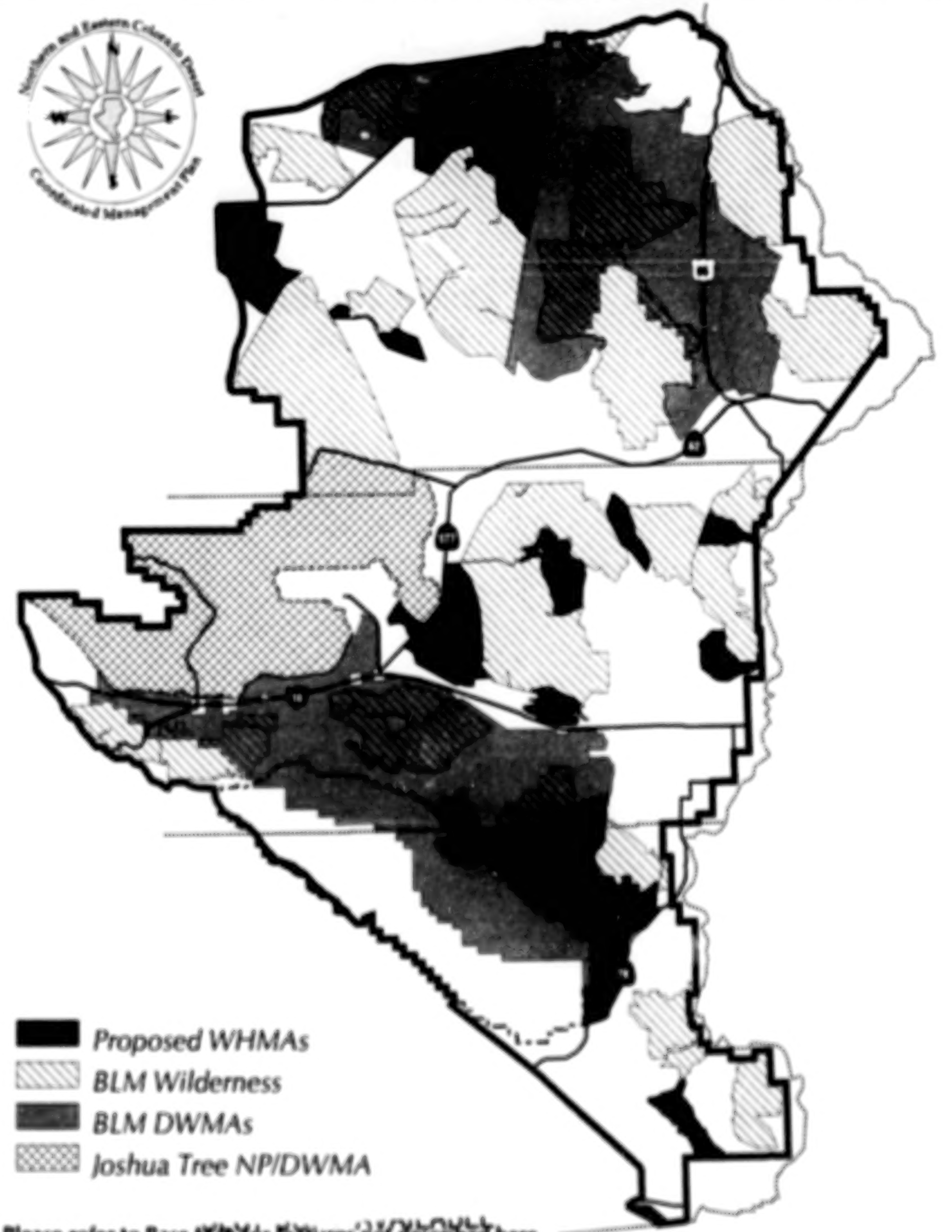
Please refer to Base Map for features not described here

Jan. 2, 2001

Map 2-23

Scale 1:1,120,000

Small DWMA B Alternative
Multi-Species WHMAs



Please refer to Base Map for features not described here

Jan. 2, 2001

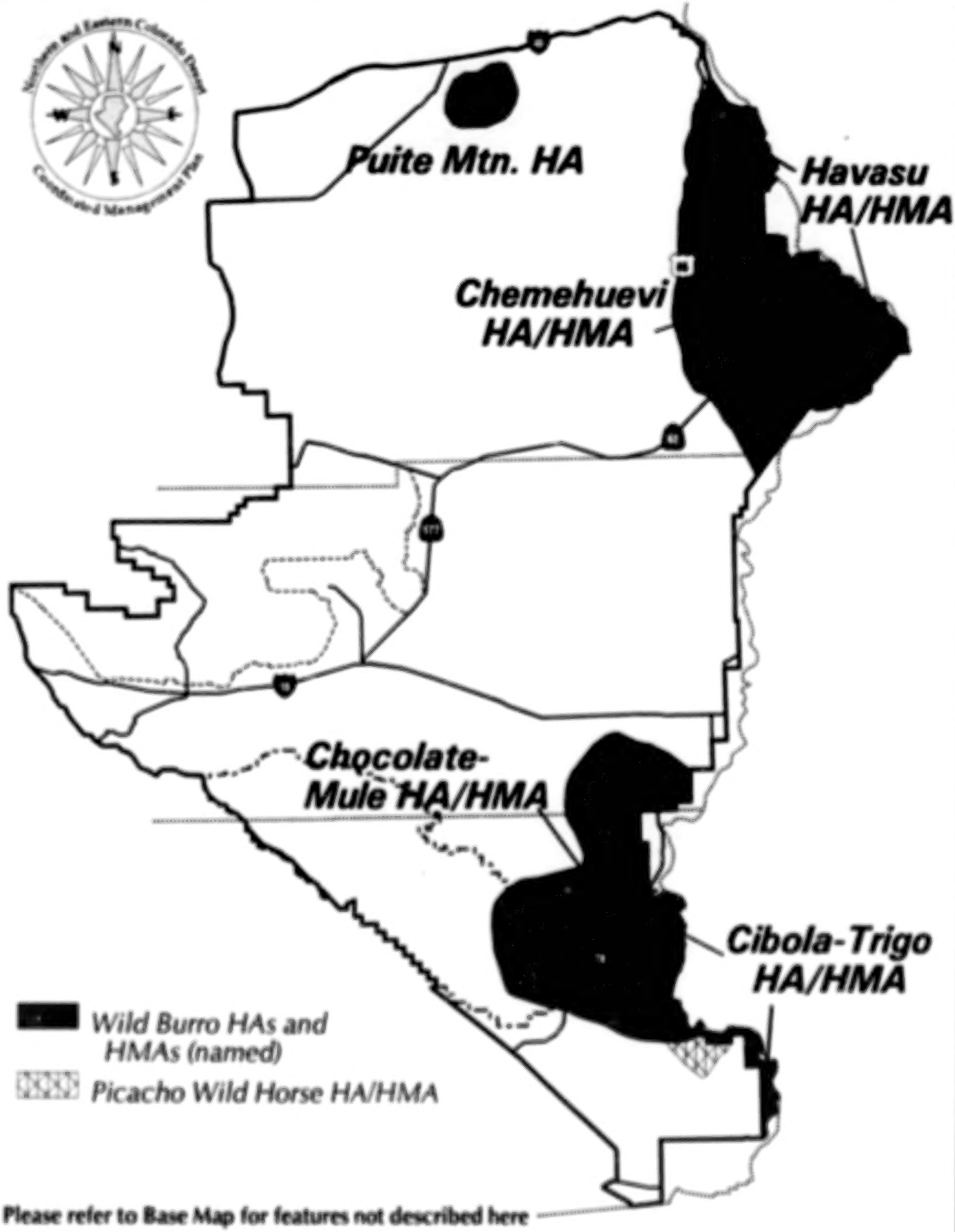
Map 2-24

Scale 1:1,120,000

BEST COPY AVAILABLE

405

Current Wild Horses and Burros Management


Northern and Eastern Colorado Desert Coordinated Management Plan
Puite Mtn. HA
Havasu HA/HMA
Chemehuevi HA/HMA
Chocolate-Mule HA/HMA
Cibola-Trigo HA/HMA
Wild Burro HAs and HMAs (named)
Picacho Wild Horse HA/HMA

Please refer to Base Map for features not described here

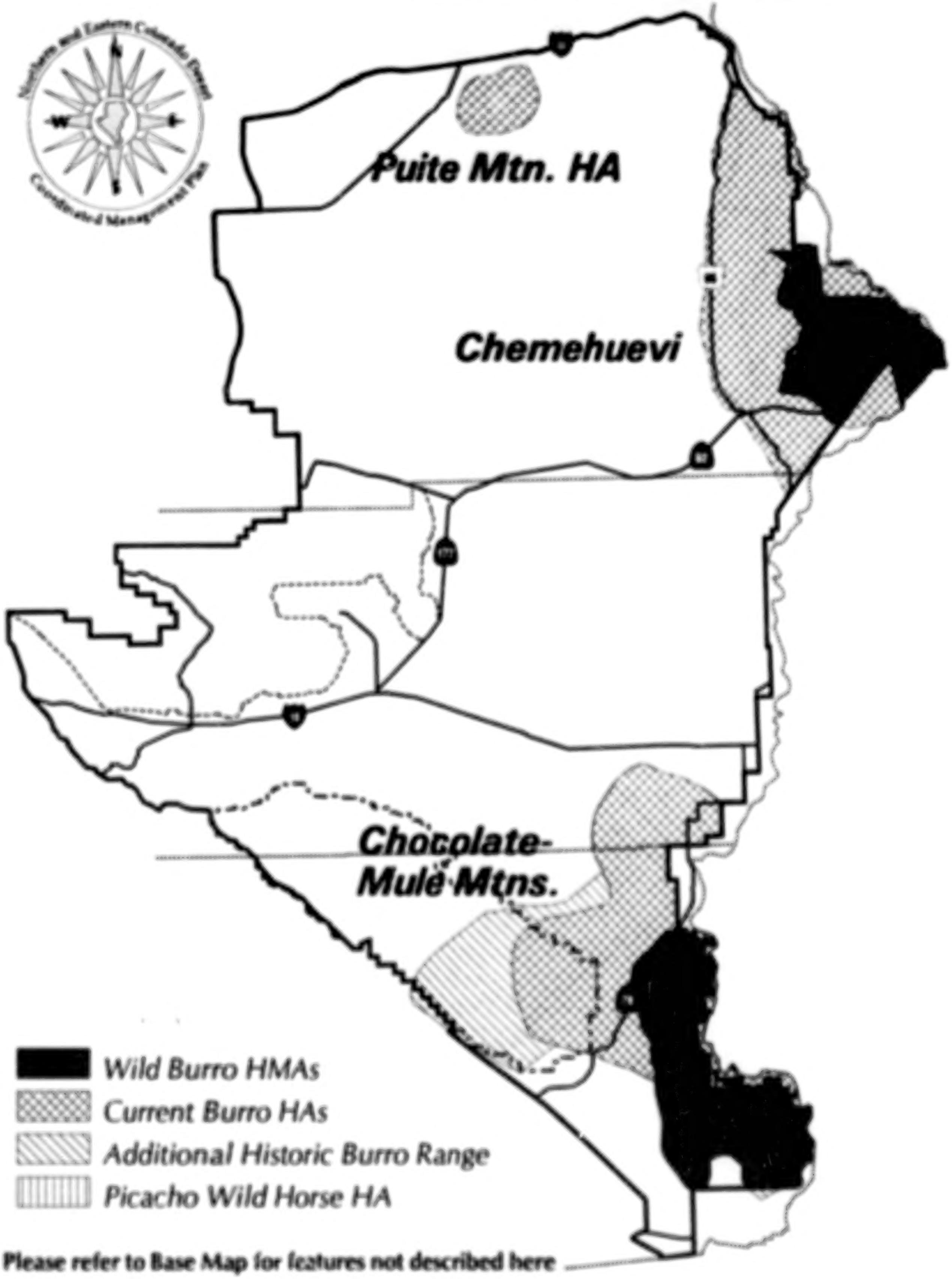
Jan. 16, 2001

Map 2-25

Scale 1:1,120,000

BEST COPY AVAILABLE

Preferred/Large DWMA Alternative
Wild Horses and Burros Management



Please refer to Base Map for features not described here

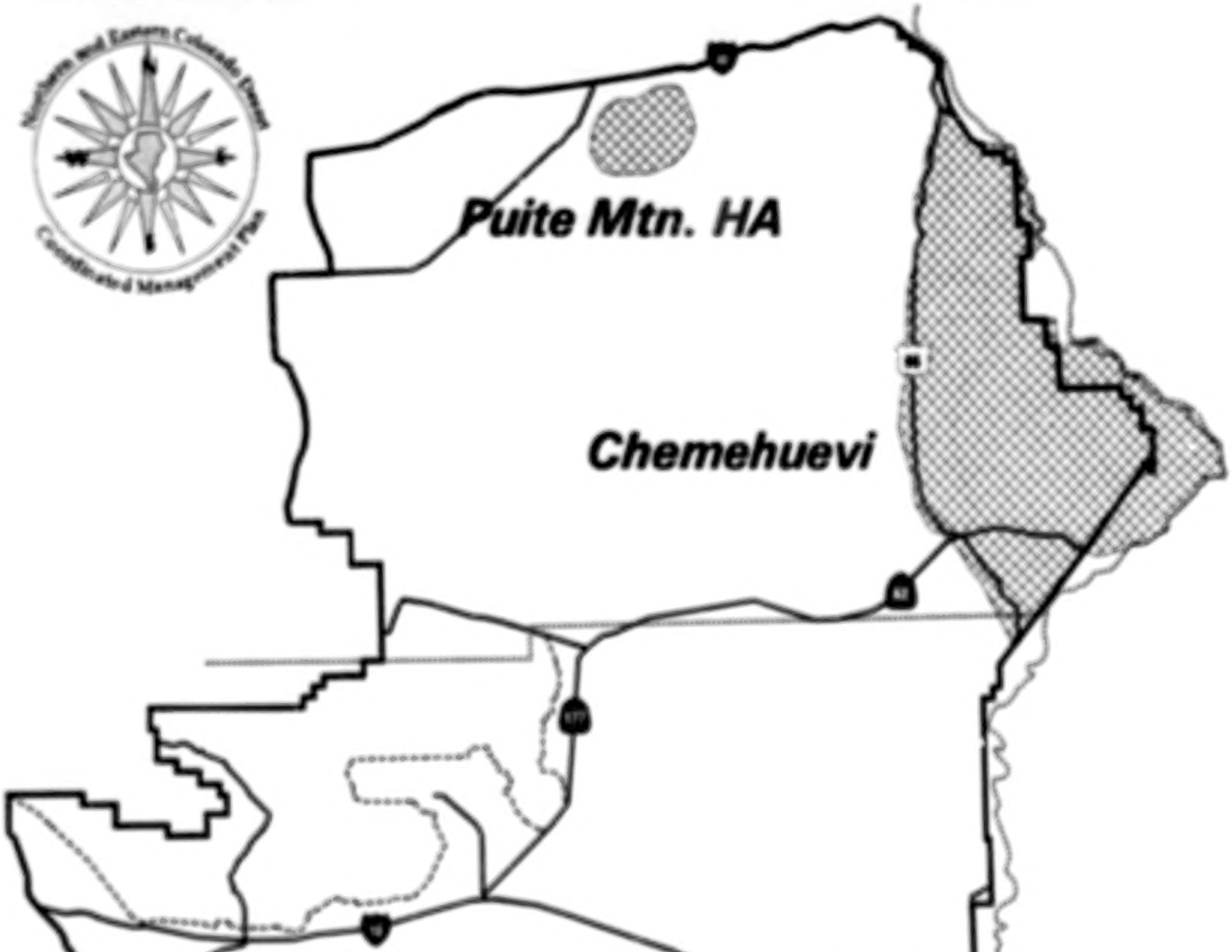
Jan. 16, 2001

Map 2-26

Scale 1:1,120,000

BEST COPY AVAILABLE

Small DWMA A Alternative
Wild Horses and Burros Management


Northern and Eastern Colorado Desert Coordinated Management Plan
N
S
E
W
Puite Mtn. HA
Chemehuevi
Chocolate-Mule Mtns.
▨ Wild Burro HAs (named)
▧ Additional Historic Burro Range
▥ Picacho Wild Horse HA

Please refer to Base Map for features not described here

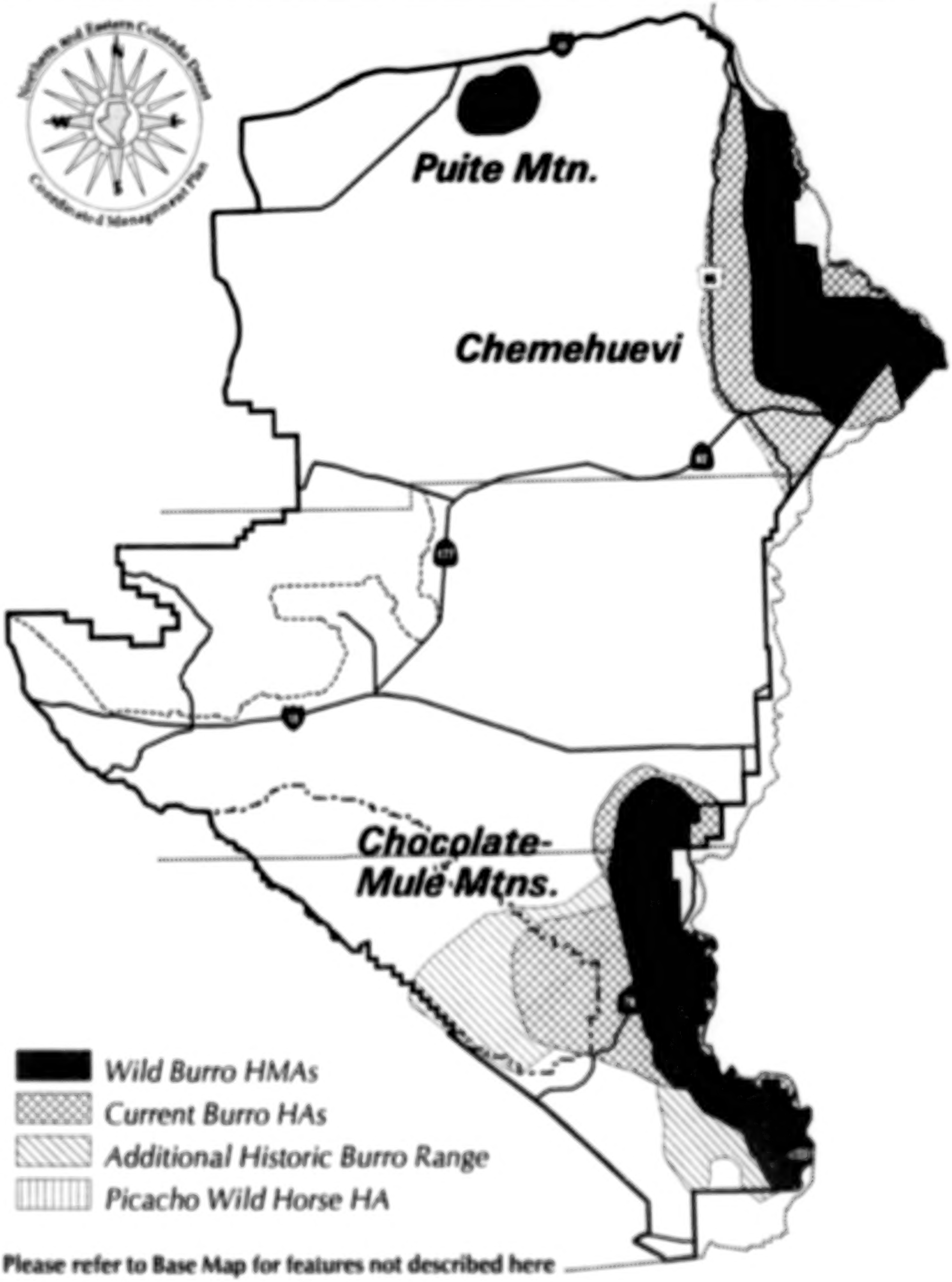
Aug. 4, 2000

Map 2-27

Scale 1:1,120,000

BEST COPY AVAILABLE

Small DWMA B Alternative
Wild Horses and Burros Management



Please refer to Base Map for features not described here

Jan. 16, 2001

Map 2-28

Scale 1:1,120,000

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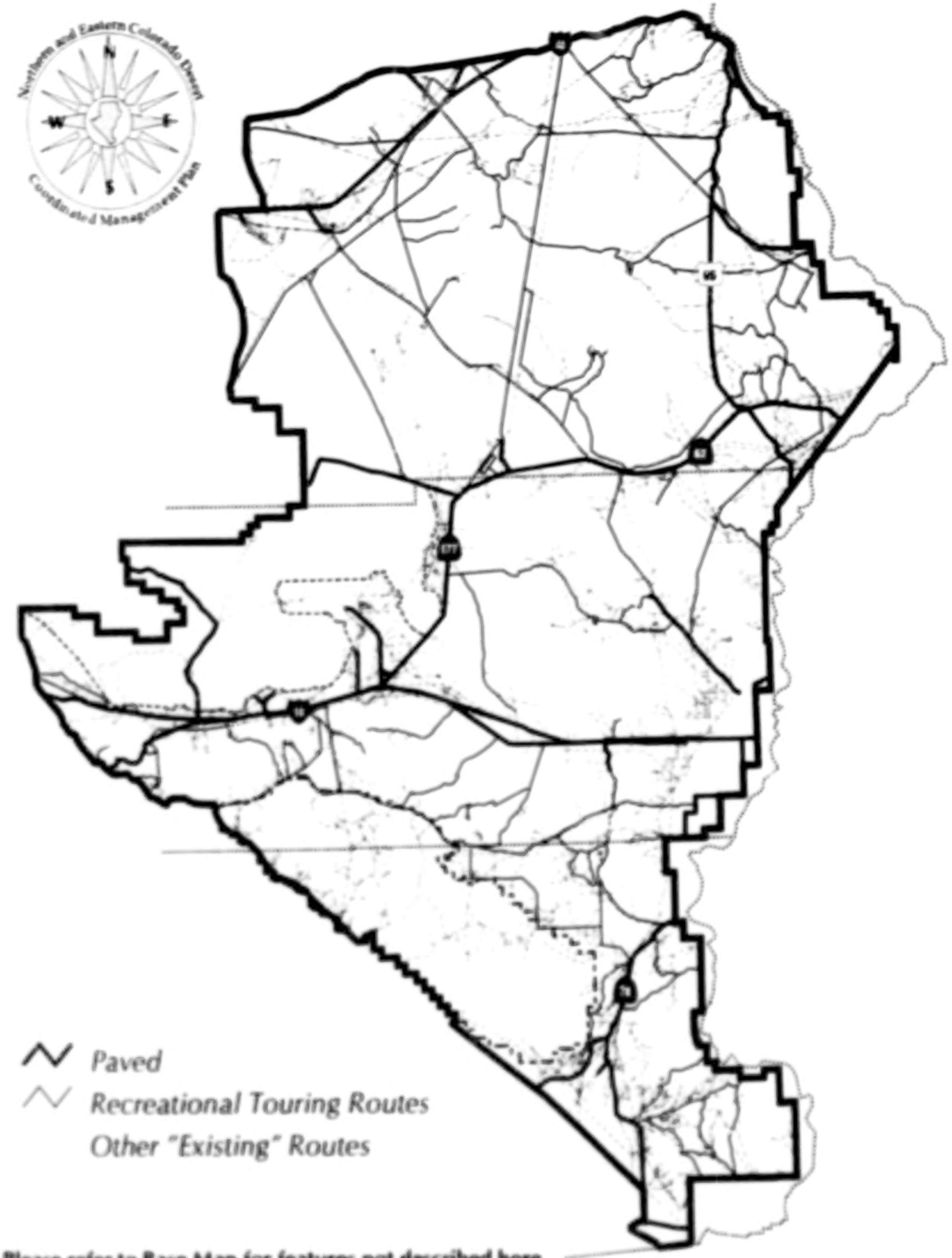
Current Access Network - All Agencies


Northern and Eastern Colorado Desert
Coordinated Management Plan
N
W
E
S
Paved
Recreational Touring Routes
Other "Existing" Routes

Please refer to Base Map for features not described here

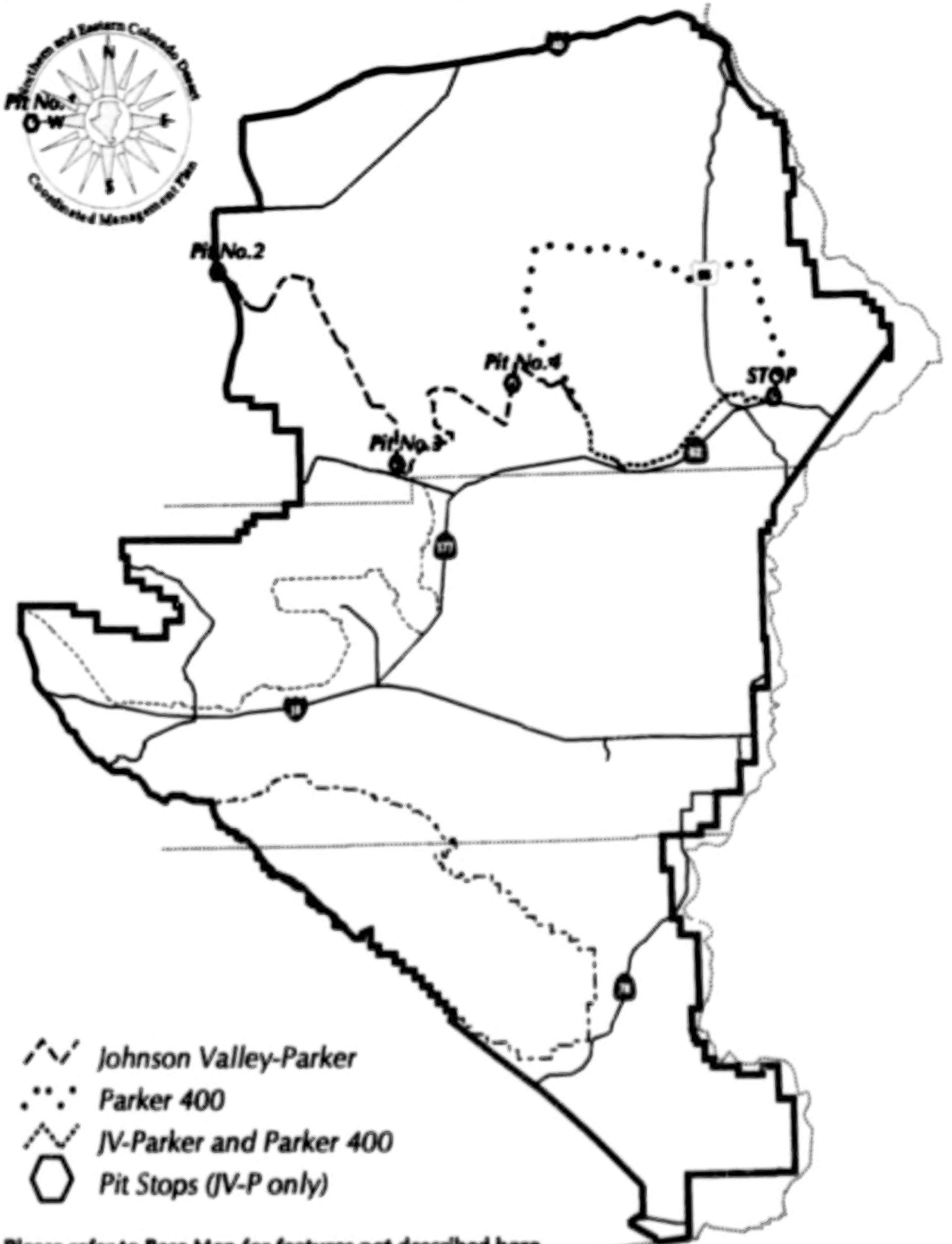
Dec. 8, 2000

Map 2-29

Scale 1:1,120,000

BEST COPY AVAILABLE

Current Competitive Recreation Routes



Please refer to Base Map for features not described here

Aug. 4, 2000

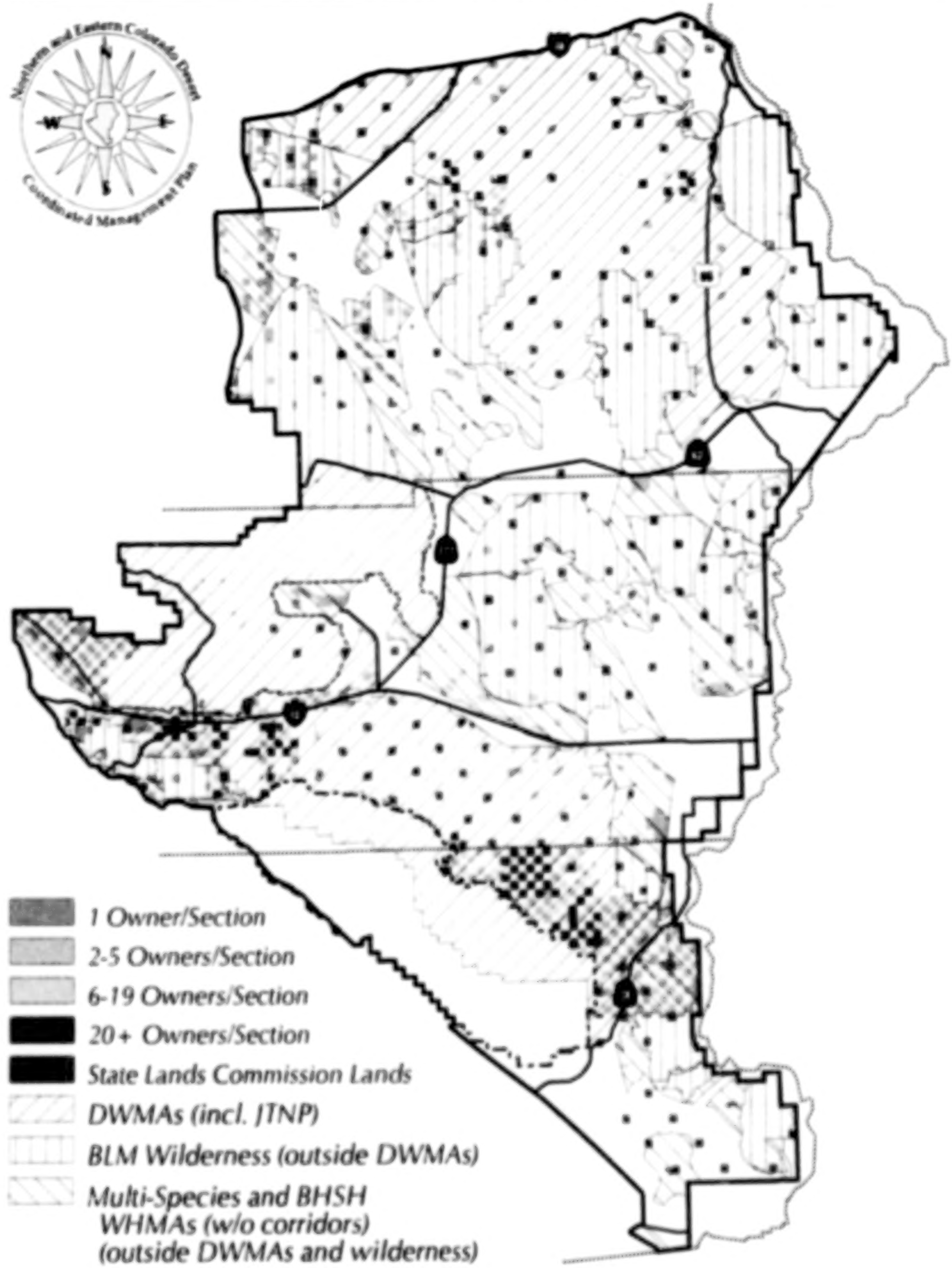
Map 2-30

Scale 1:1,120,000

411

BEST COPY AVAILABLE

Preferred/Large DWMA Alternative
Acquire Habitat


Northern and Eastern Colorado Desert
Coordinated Management Plan
N
S
E
W
1 Owner/Section
2-5 Owners/Section
6-19 Owners/Section
20+ Owners/Section
State Lands Commission Lands
DWMAs (incl. JTNP)
BLM Wilderness (outside DWMAs)
Multi-Species and BHSH
WHMAs (w/o corridors)
(outside DWMAs and wilderness)

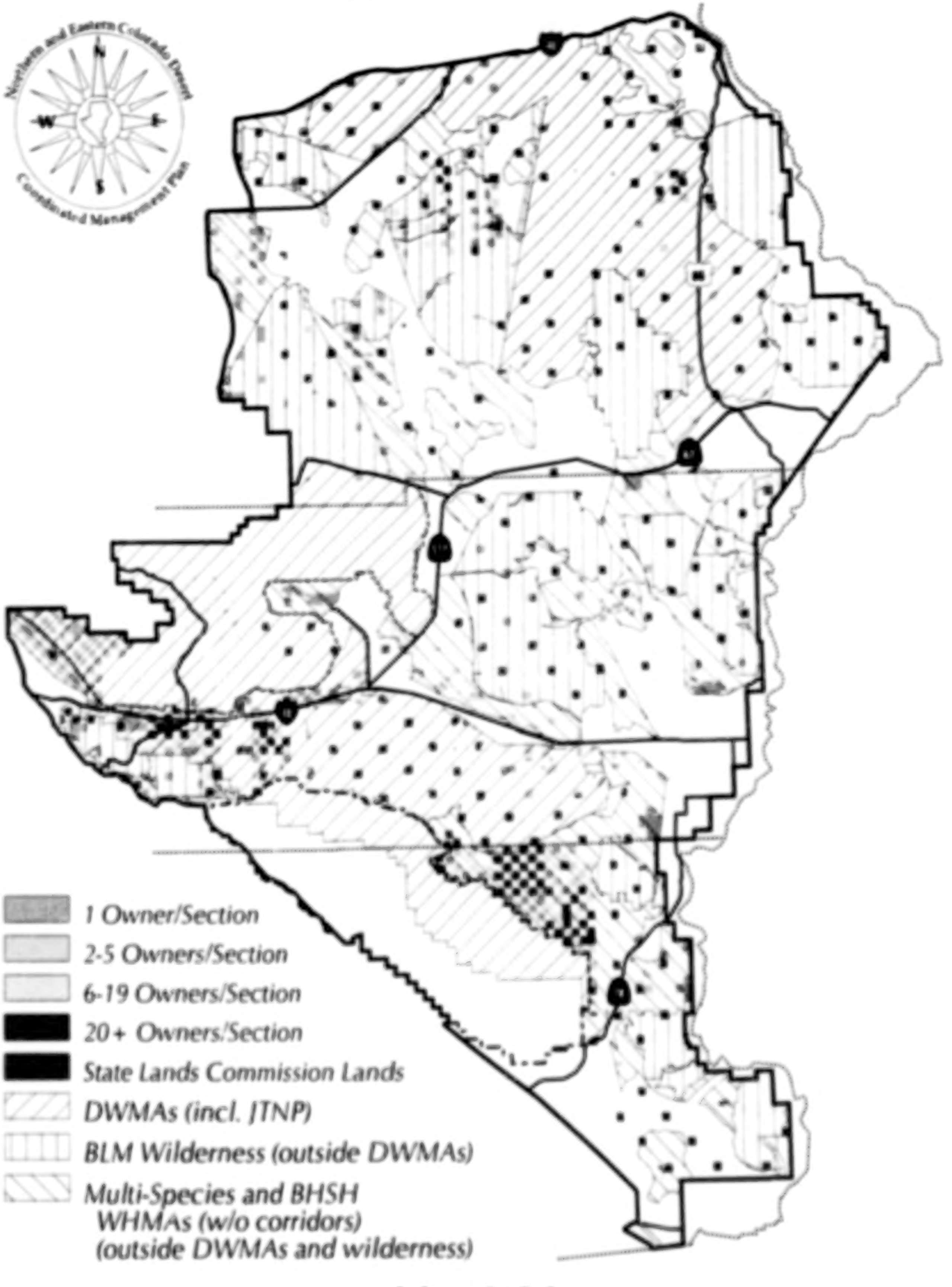
Dec. 5, 2000

Map 2-35

Scale 1:1,120,000

BEST COPY AVAILABLE

Small DWMA A Alternative
Acquire Habitat


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S

▩ 1 Owner/Section

▨ 2-5 Owners/Section

▨ 6-19 Owners/Section

■ 20+ Owners/Section

■ State Lands Commission Lands

▨ DWMAs (incl. JTNP)

▥ BLM Wilderness (outside DWMAs)

▧ Multi-Species and BHSH
WHMAs (w/o corridors)
(outside DWMAs and wilderness)

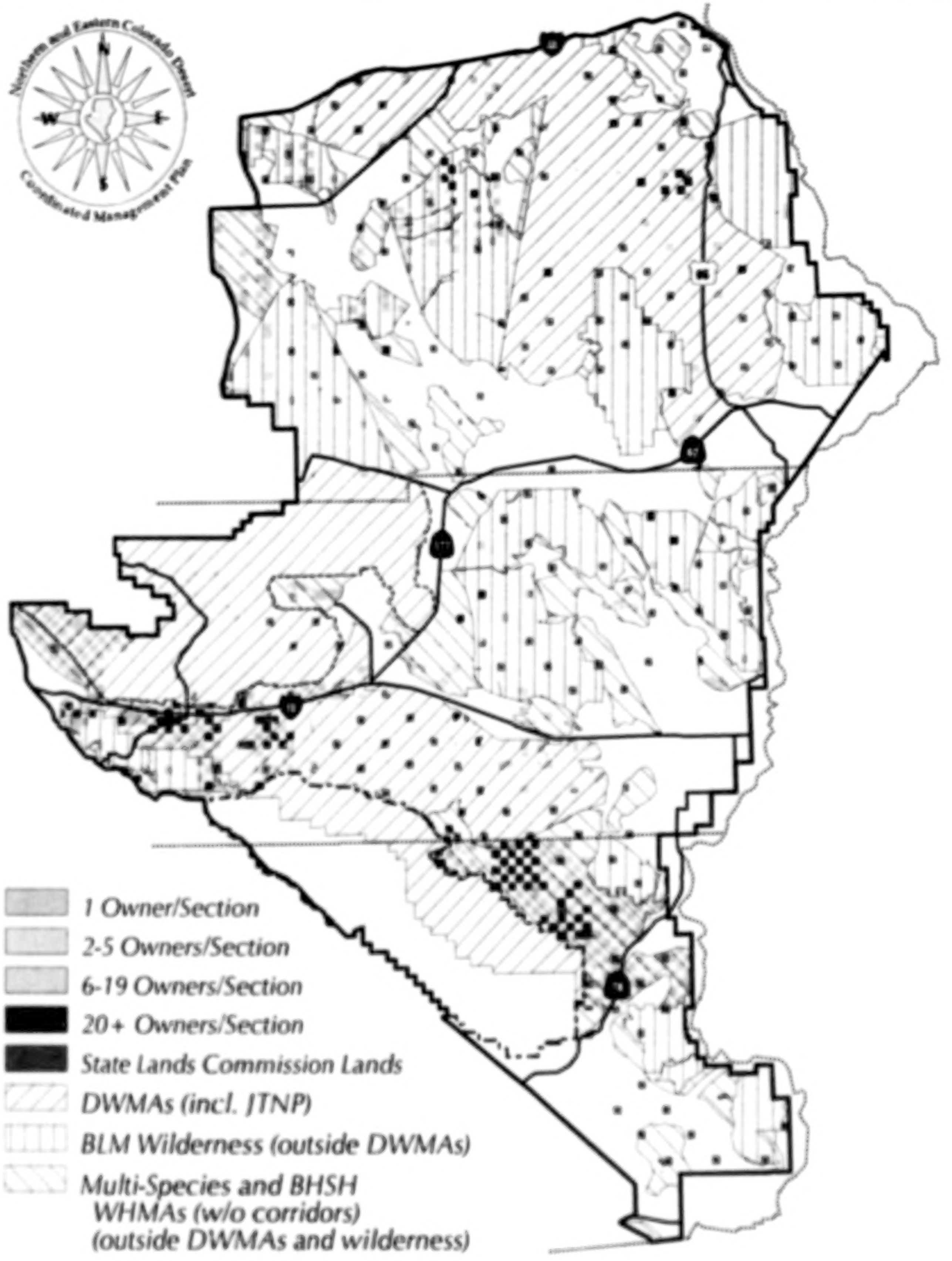
Dec. 5, 2000

Map 2-36

Scale 1:1,120,000

4/3

Small DWMA B Alternative
Acquire Habitat

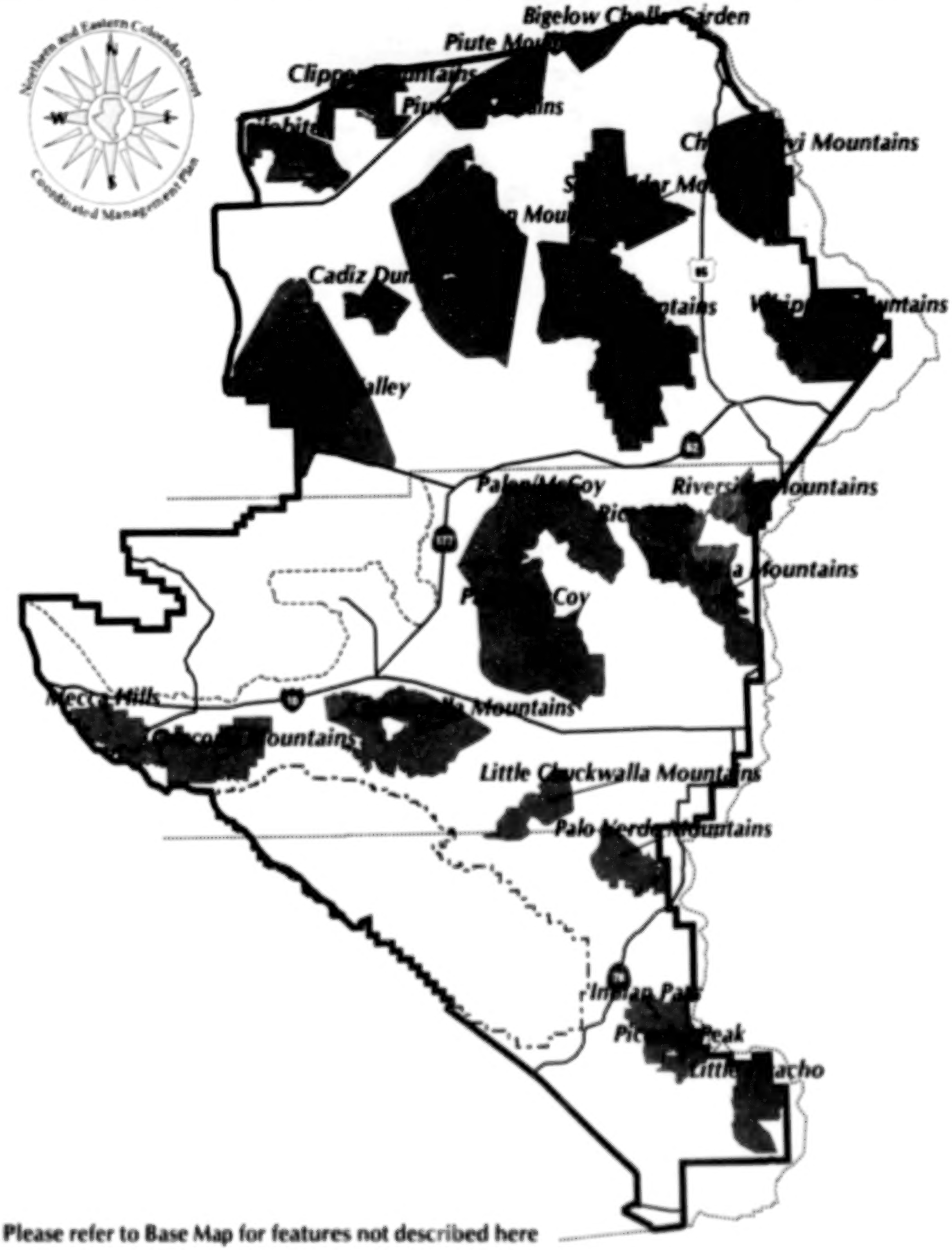

Northern and Eastern Colorado Desert Coordinated Management Plan
N
S
E
W
1 Owner/Section
2-5 Owners/Section
6-19 Owners/Section
20+ Owners/Section
State Lands Commission Lands
DWMAs (incl. JTNP)
BLM Wilderness (outside DWMAs)
Multi-Species and BHSH WHMAs (w/o corridors) (outside DWMAs and wilderness)

Dec. 5, 2000 **Map 2-37** **Scale 1:1,120,000**

BEST COPY AVAILABLE

4/4

BLM Wilderness Areas



Please refer to Base Map for features not described here

Dec. 8, 2000

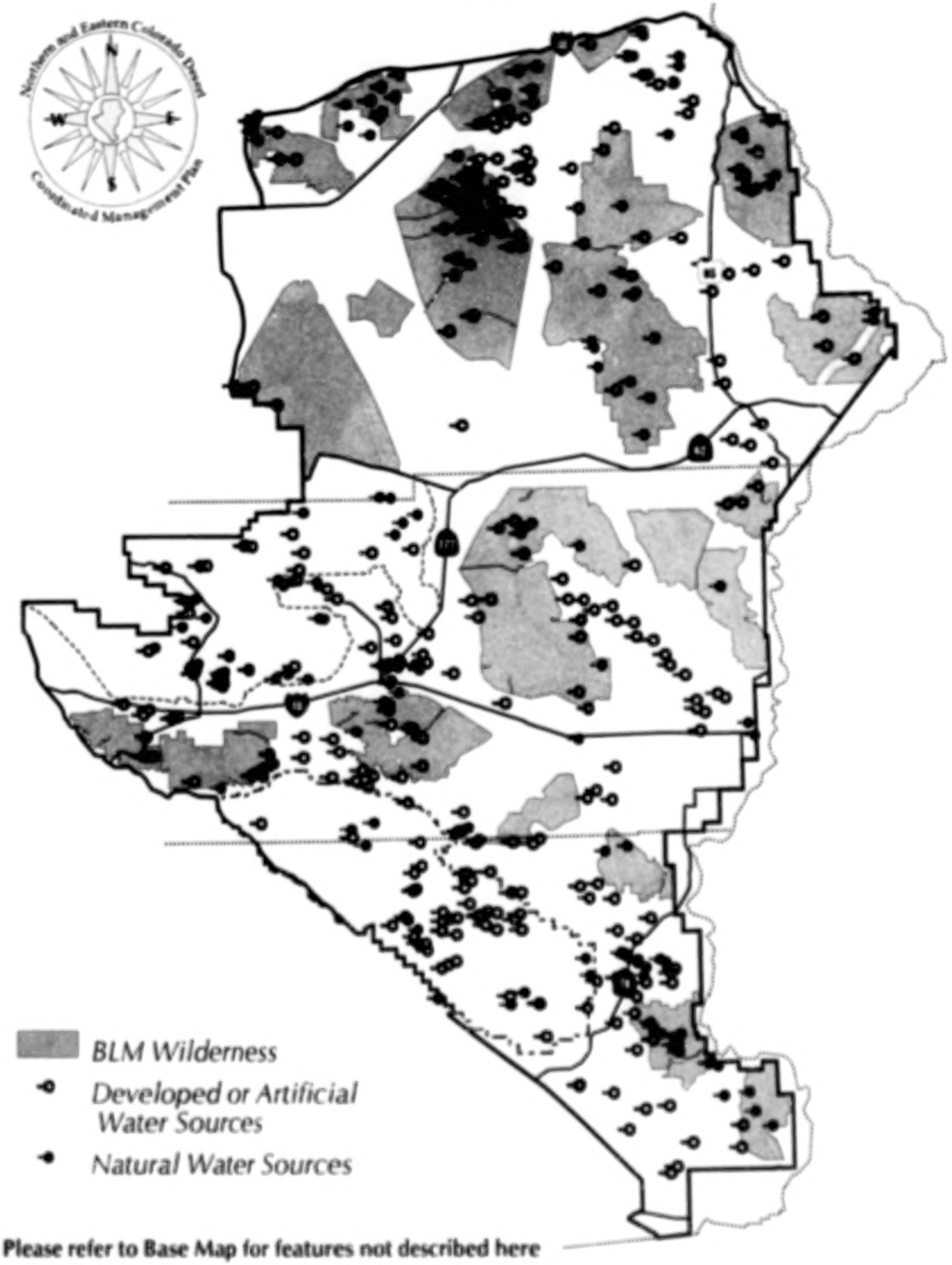
Map 2-38

Scale 1:1,120,000

415

BEST COPY AVAILABLE

Existing Water Sources


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
95
62
177
10
BLM Wilderness
Developed or Artificial Water Sources
Natural Water Sources

Please refer to Base Map for features not described here

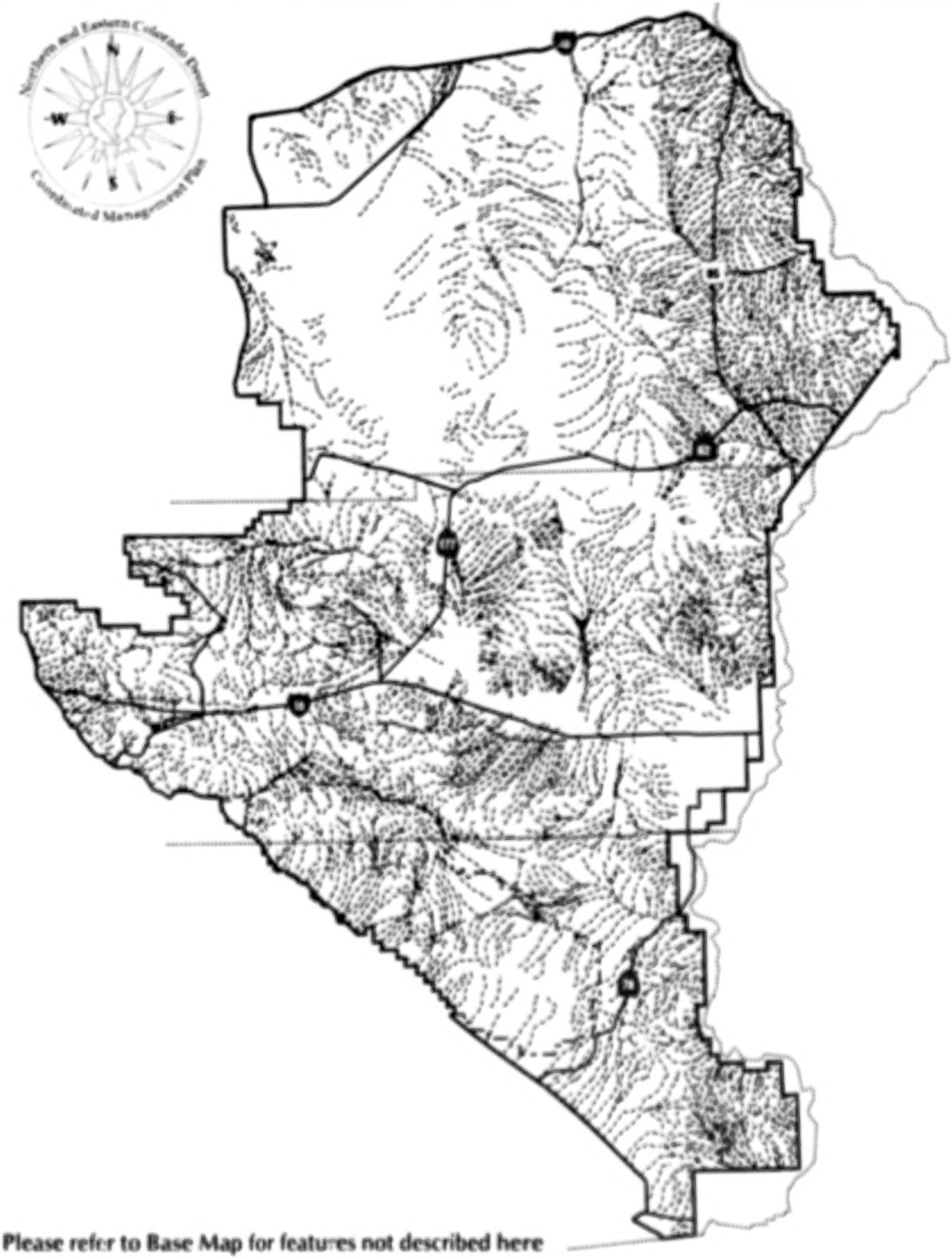
Jan. 2, 2001

Map 3-1

Scale 1:1,120,000

416

Drainages



Northern and Eastern Colorado Desert Coordinated Management Plan
N
S
E
W

Please refer to Base Map for features not described here

Jan. 2, 2001

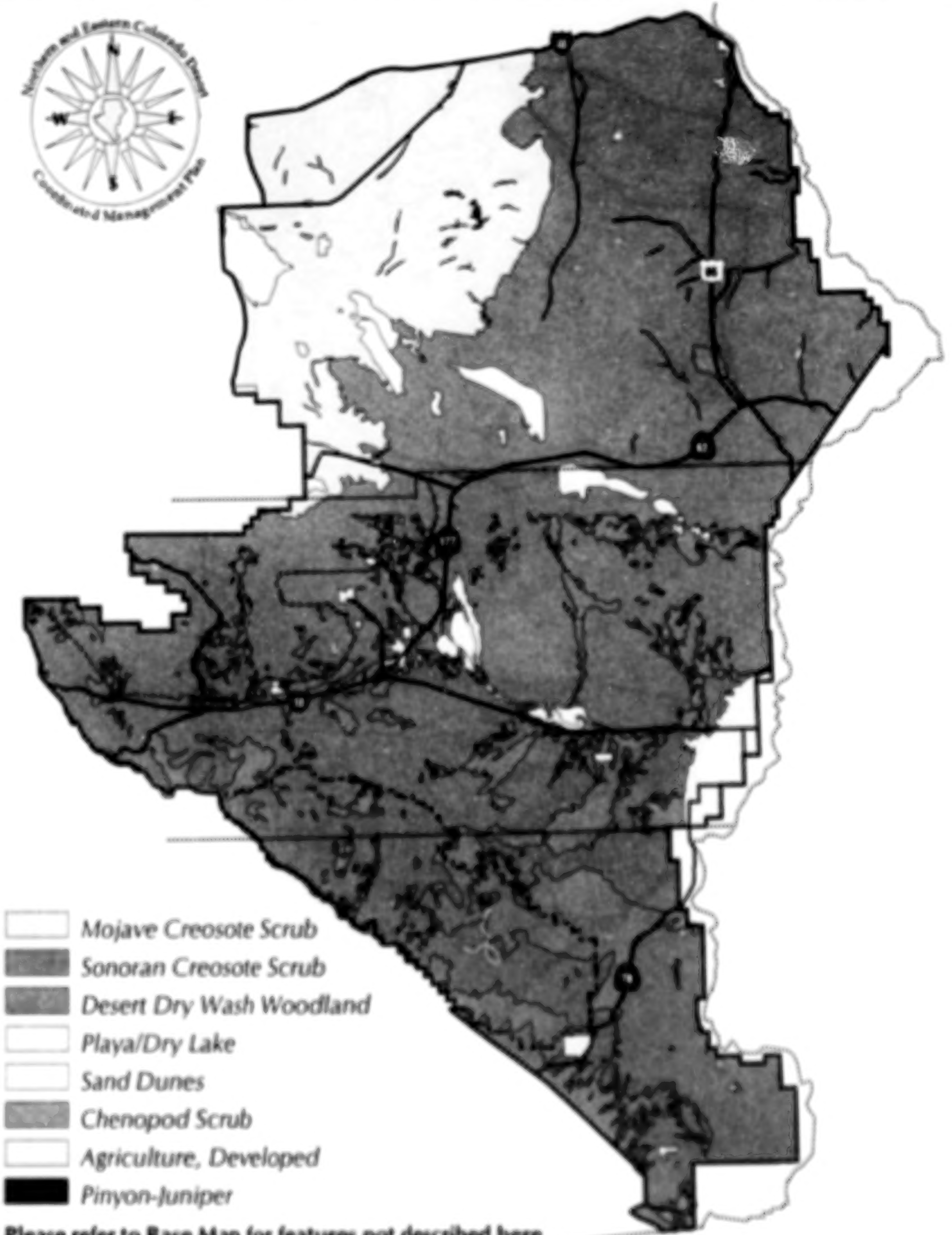
Map 3-2

Scale 1:1,120,000

BEST COPY AVAILABLE

417

Plant Communities



Please refer to Base Map for features not described here

Jan. 2, 2001

Map 3-3

Scale 1:1,120,000

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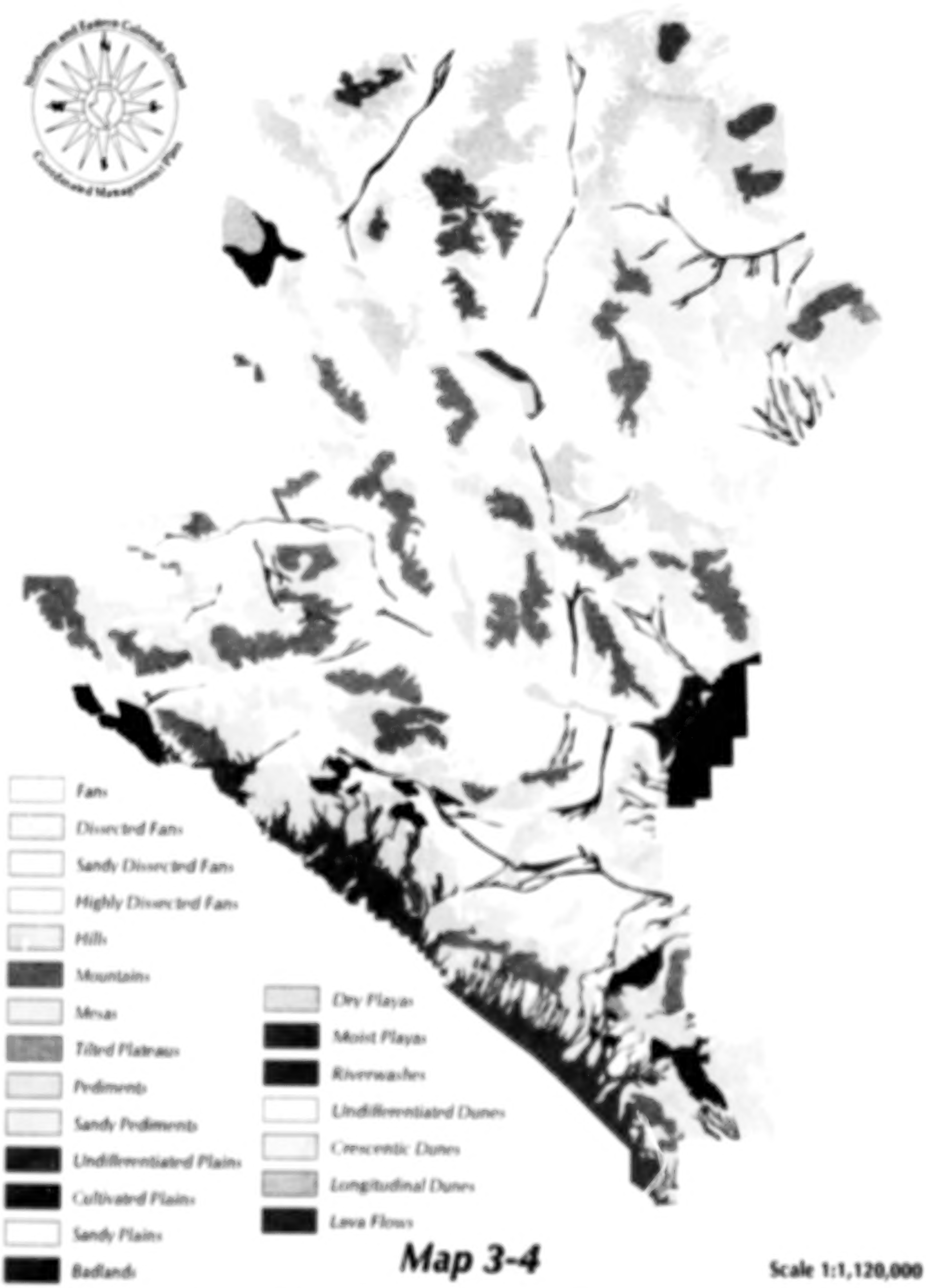
Landforms

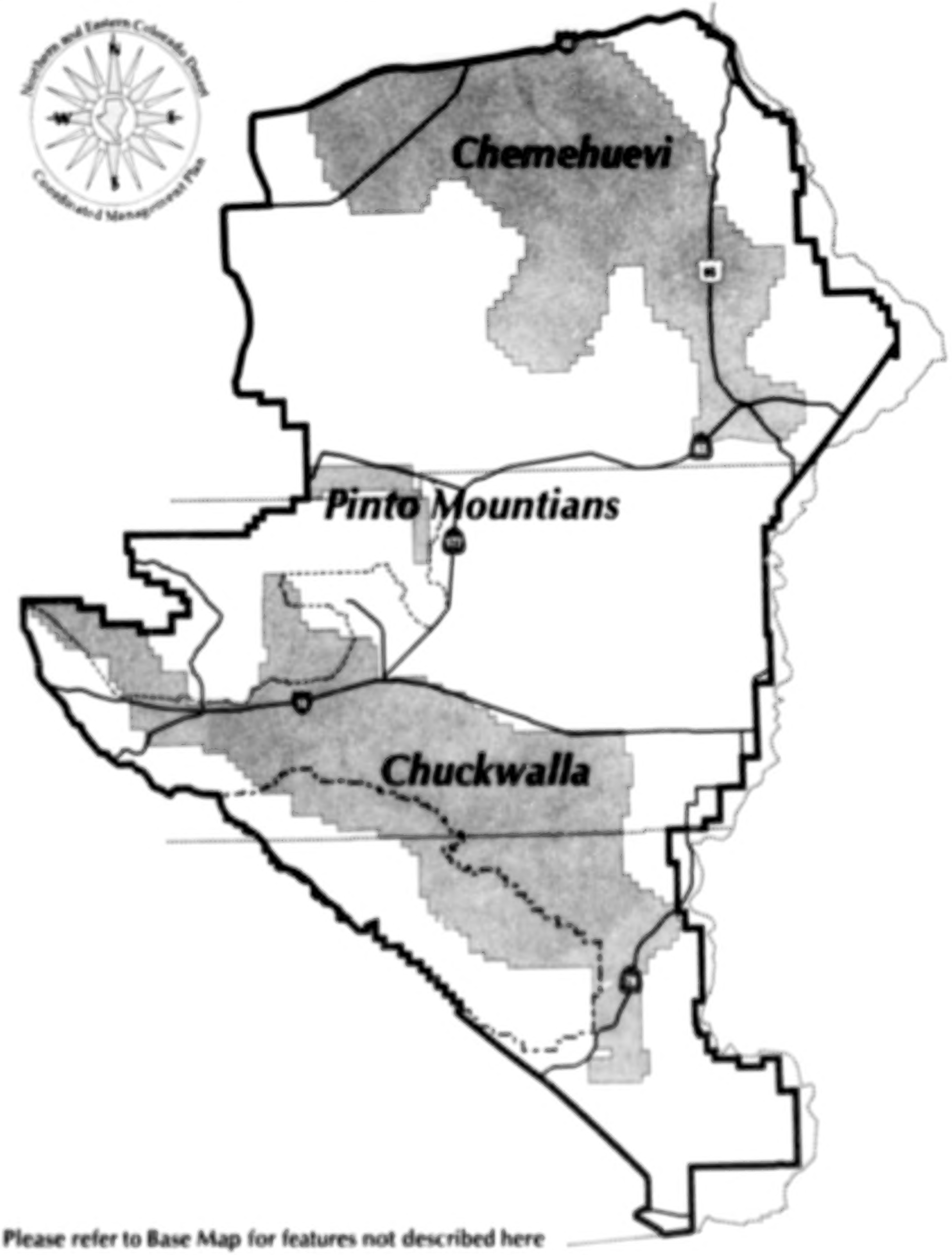


Map 3-4

Scale 1:1,120,000

BEST COPY AVAILABLE

Desert Tortoise Critical Habitat


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
Chemehuevi
Pinto Mountians
Chuckwalla

Please refer to Base Map for features not described here

Jan. 16, 2001

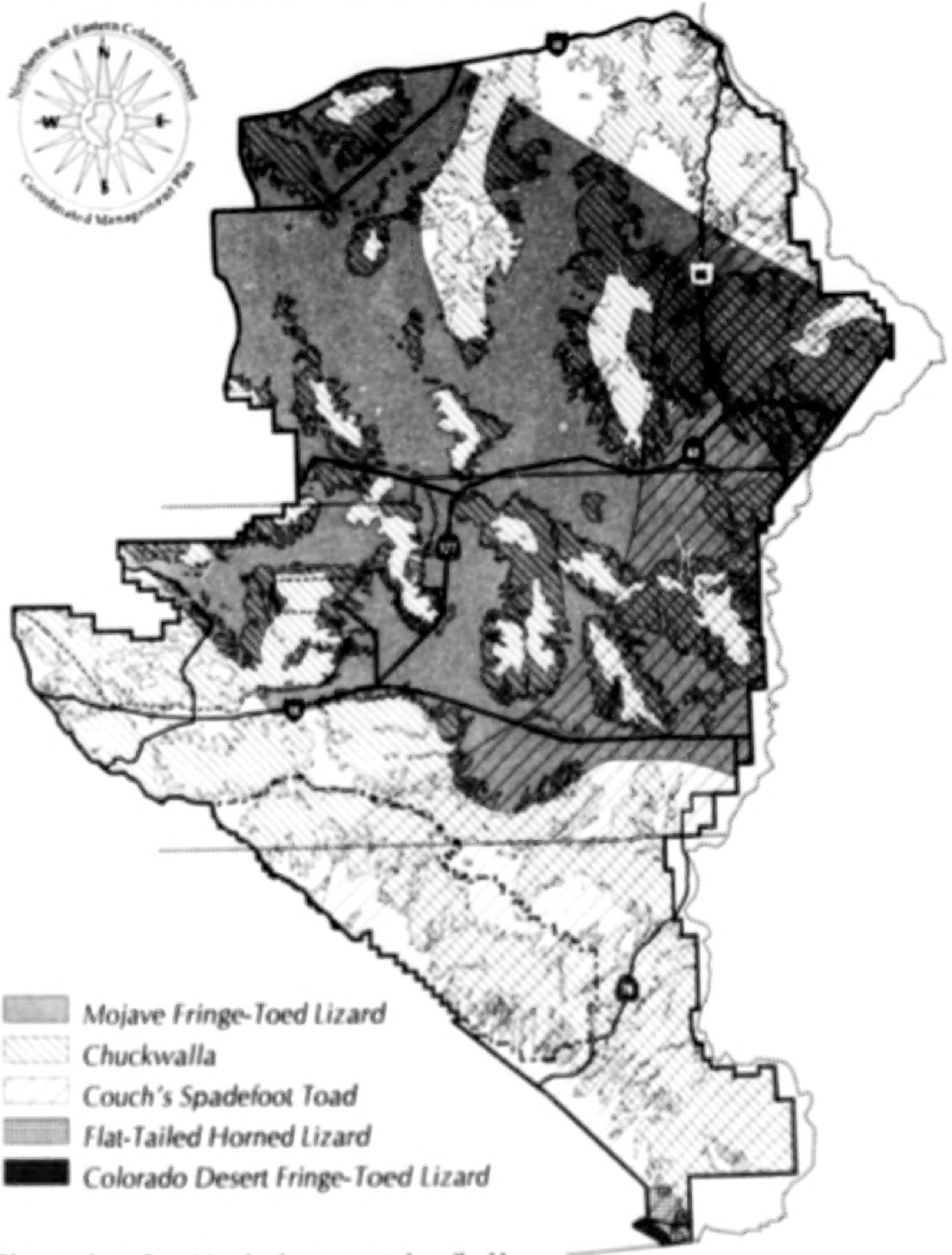
Map 3-5

Scale 1:1,120,000

BEST COPY AVAILABLE

420

Special Status Species - Animals


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
Mojave Fringe-Toed Lizard
Chuckwalla
Couch's Spadefoot Toad
Flat-Tailed Horned Lizard
Colorado Desert Fringe-Toed Lizard

Please refer to Base Map for features not described here

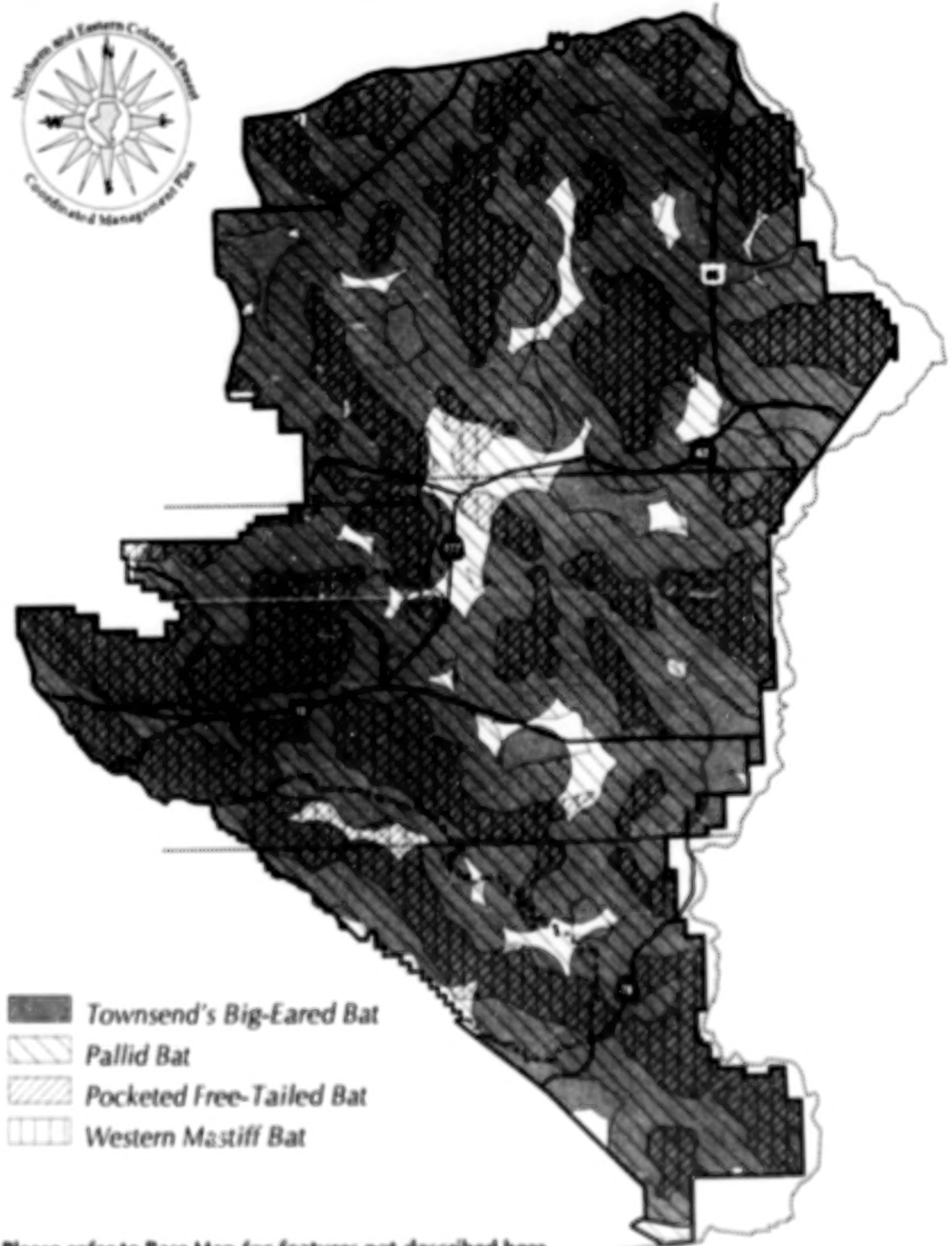
Dec. 5, 2000

Map 3-6a

Scale 1:1,120,000

BEST COPY AVAILABLE

Special Status Species - Animals



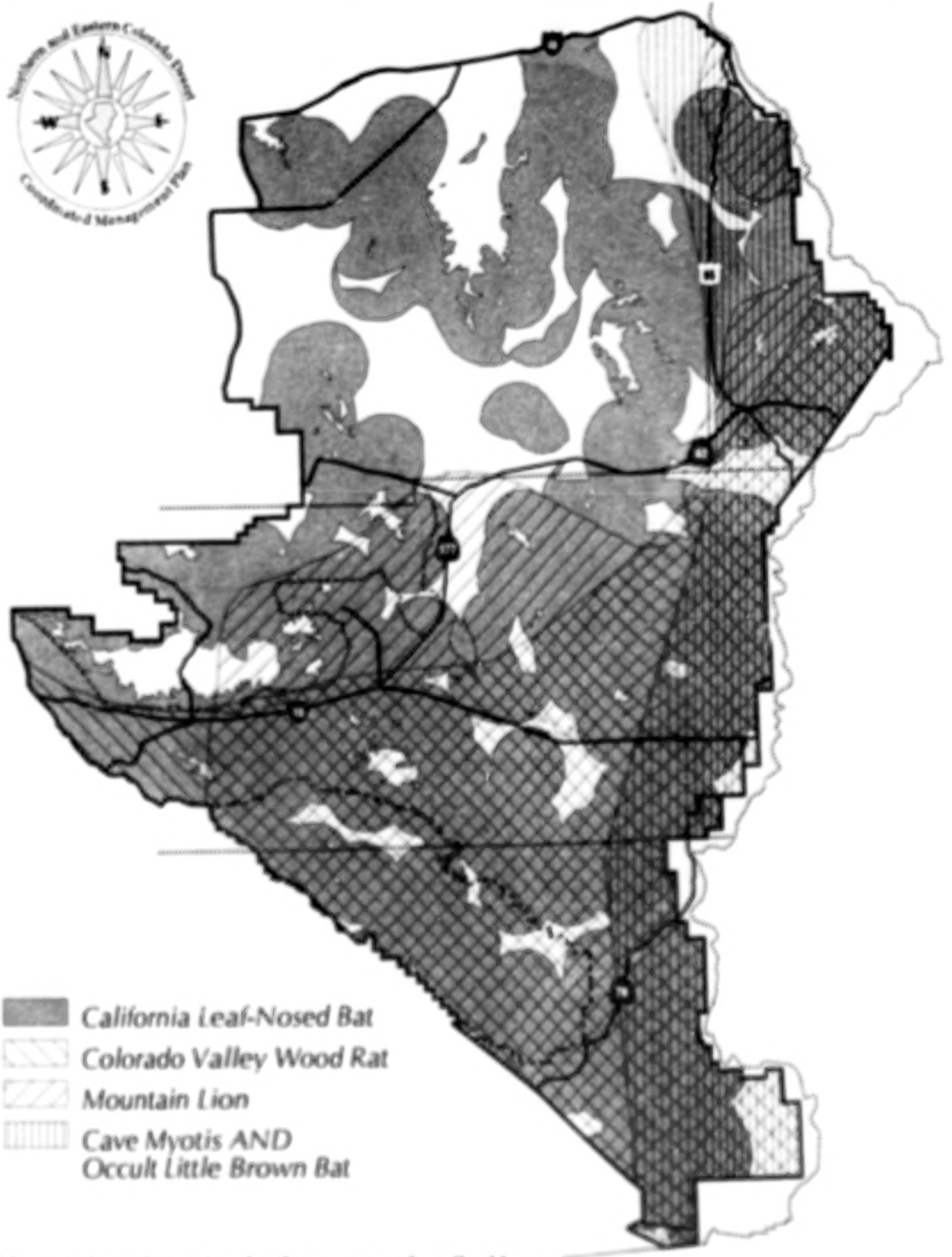
Please refer to Base Map for features not described here

Dec. 5, 2000

Map 3-6b

Scale 1:1,120,000

Special Status Species - Animals


Northern and Eastern Colorado Desert
Coordinated Management Plan
N
S
E
W
▨ California Leaf-Nosed Bat
▨ Colorado Valley Wood Rat
▨ Mountain Lion
▨ Cave Myotis AND
Occult Little Brown Bat

Please refer to Base Map for features not described here

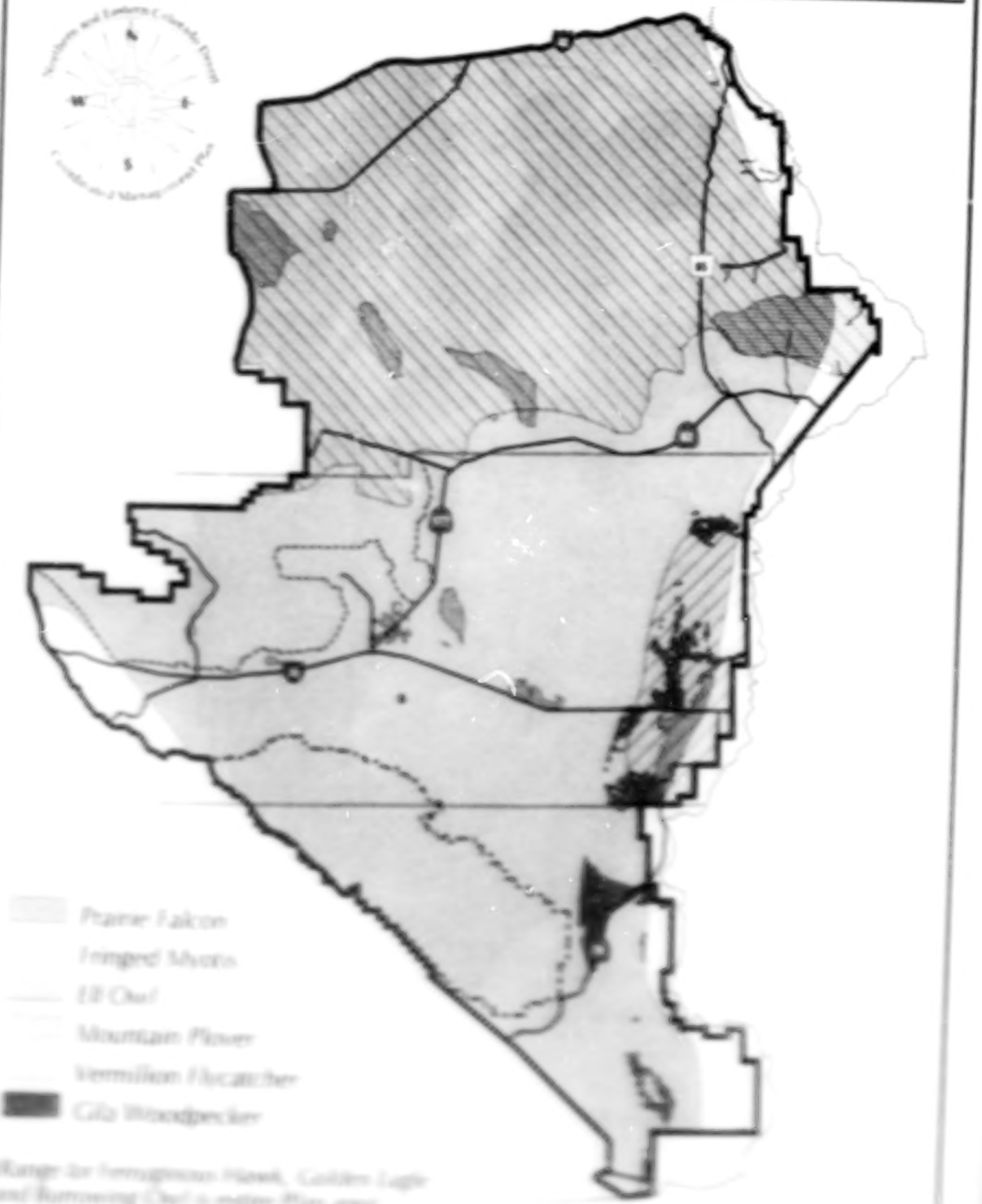
Dec. 5, 2000

Map 3-6c

Scale 1:1,120,000

BEST COPY AVAILABLE

Special Status Species - Animals



Range for Ferruginous Hawk, Golden Eagle and Burrowing Owl is entire Plan area

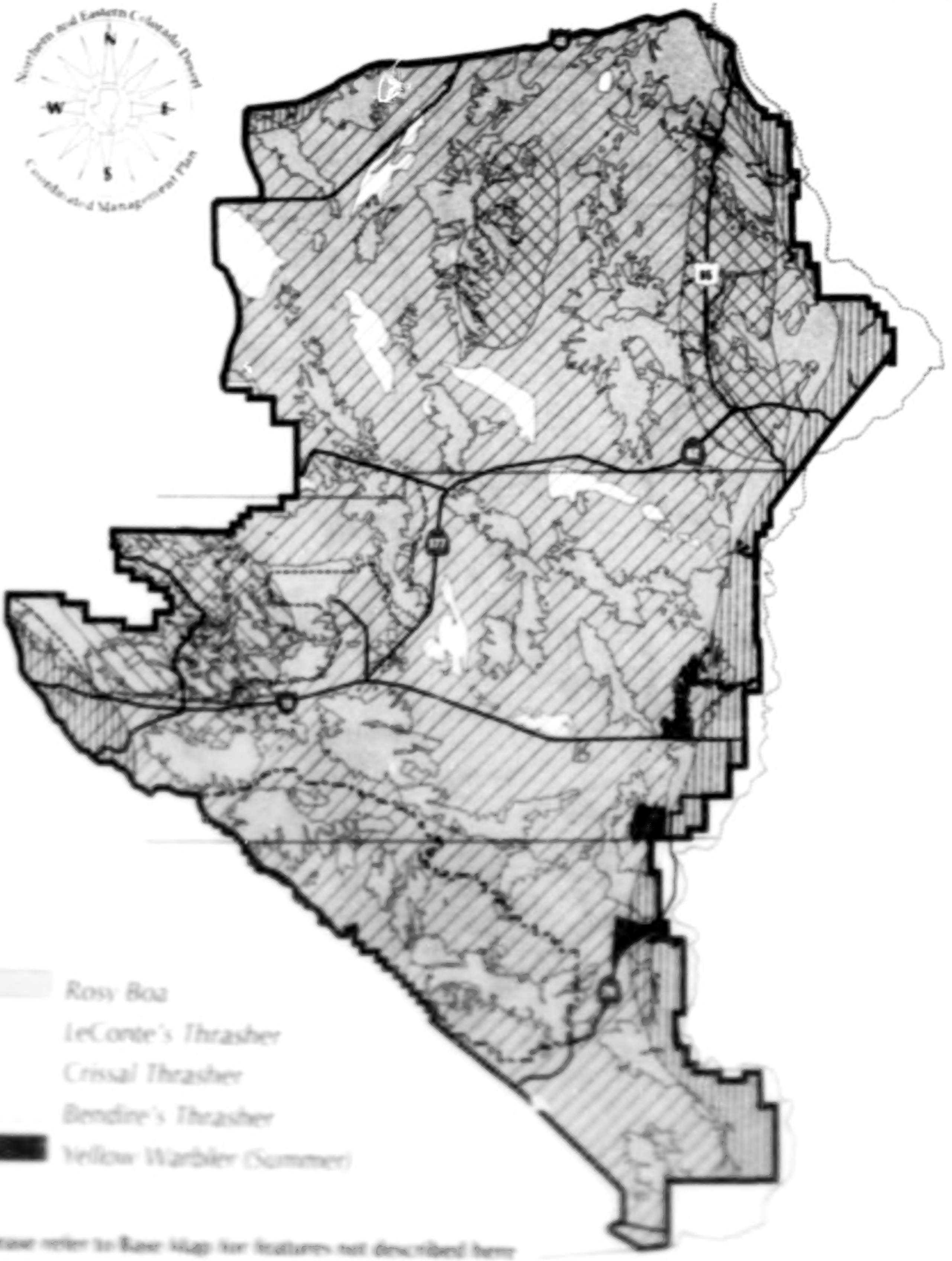
Jan. 16, 2001

Map 3-6d

Scale 1:1,120,000

BEST COPY AVAILABLE

Special Status Species - Animals



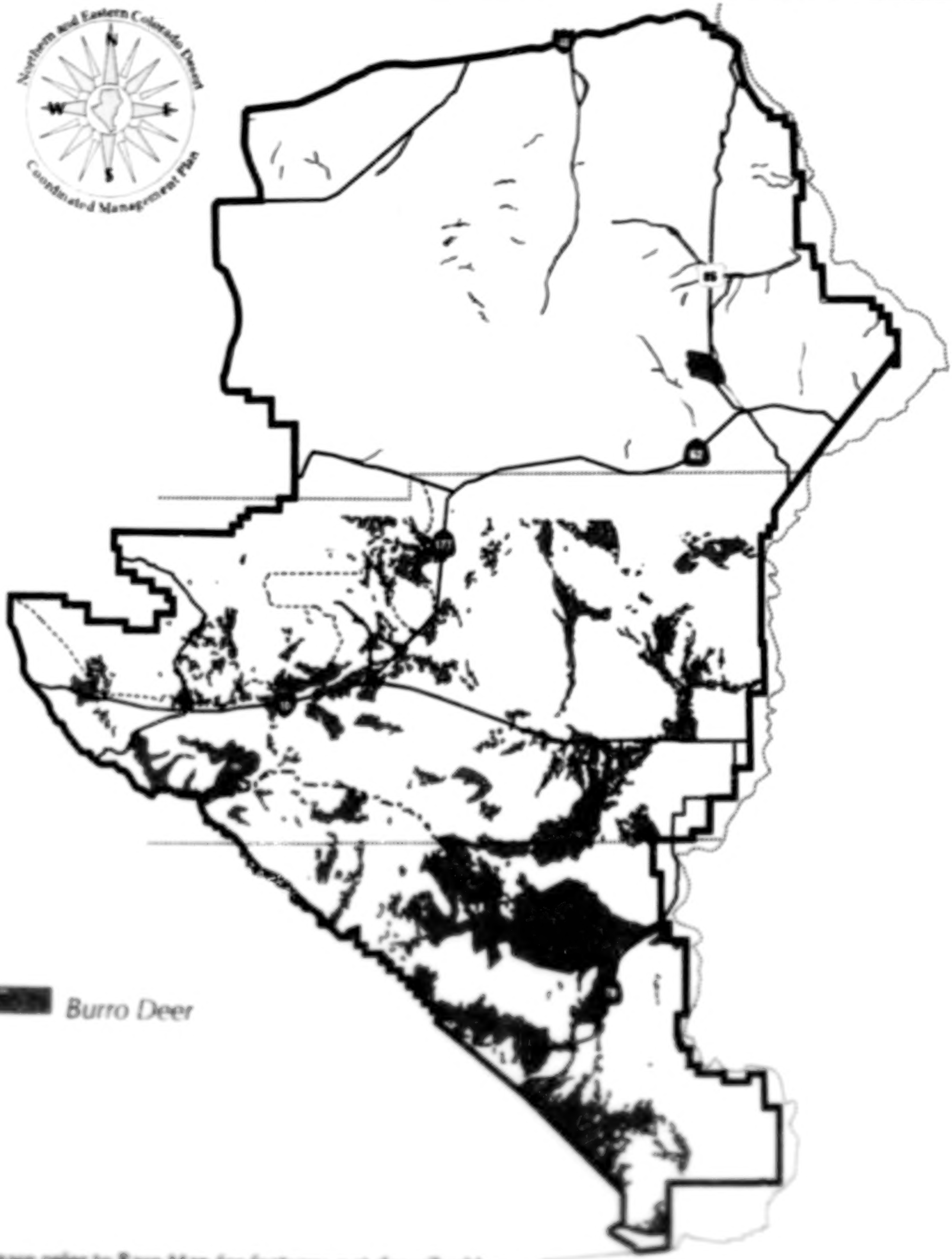
Please refer to Base Map for features not described here

Jan. 16, 2001

Map 3-6e

Scale 1:1,120,000

Special Status Species - Animals


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
62
95
177
■ Burro Deer

Please refer to Base Map for features not described here

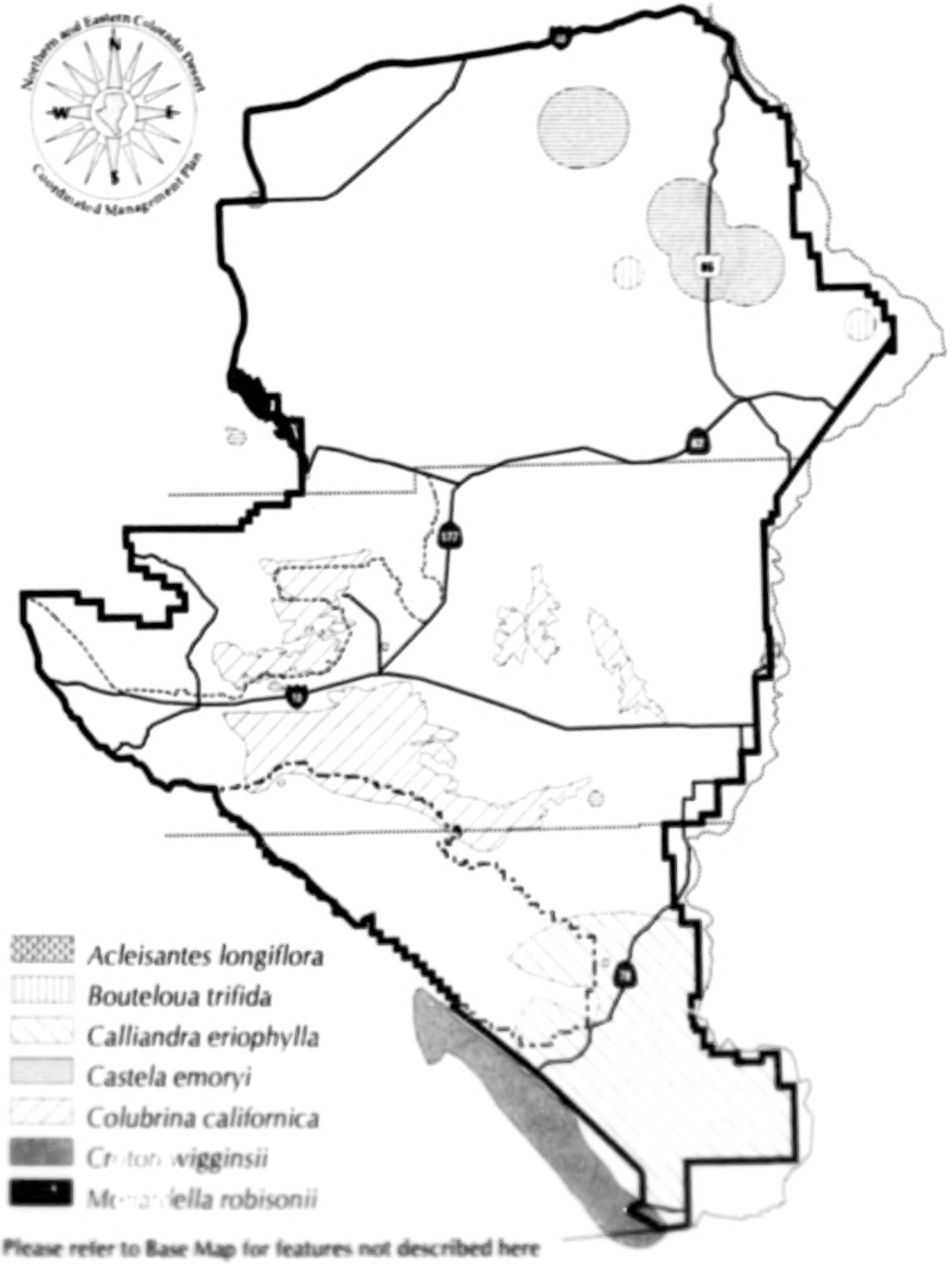
Jan. 16, 2001

Map 3-6f

Scale 1:1,120,000

BEST COPY AVAILABLE

Special Status Species - Plants



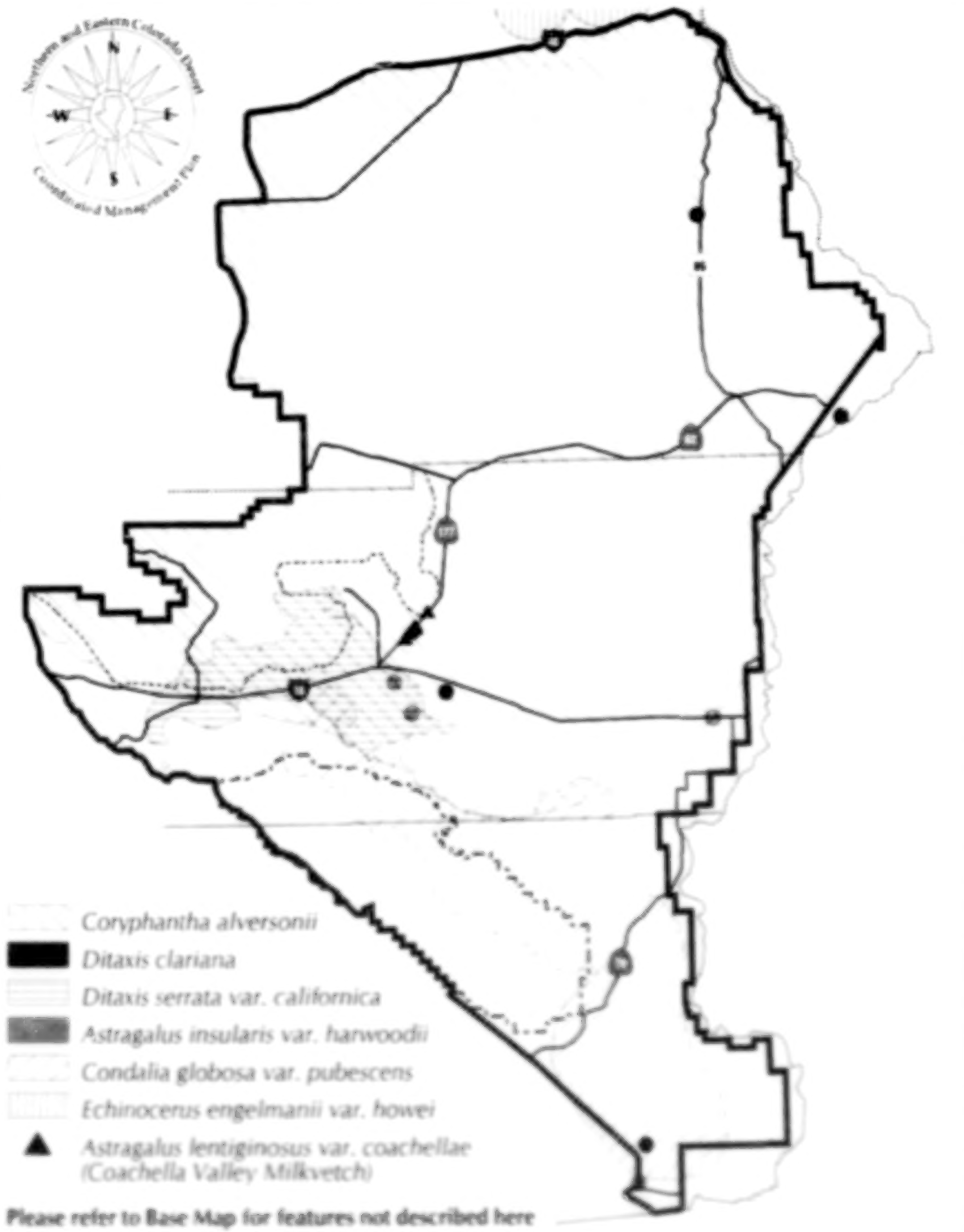
Please refer to Base Map for features not described here

Dec. 8, 2000

Map 3-7a

Scale 1:1,120,000

Special Status Species - Plants


Northern and Eastern Colorado Desert
Coordinated Management Plan
N
S
E
W
▭ Coryphantha alversonii
■ Ditaxis clariana
▤ Ditaxis serrata var. californica
▨ Astragalus insularis var. harwoodii
▭ Condalia globosa var. pubescens
▦ Echinocerus engelmanii var. howei
▲ Astragalus lentiginosus var. coachellae (Coachella Valley Milkvetch)

Please refer to Base Map for features not described here

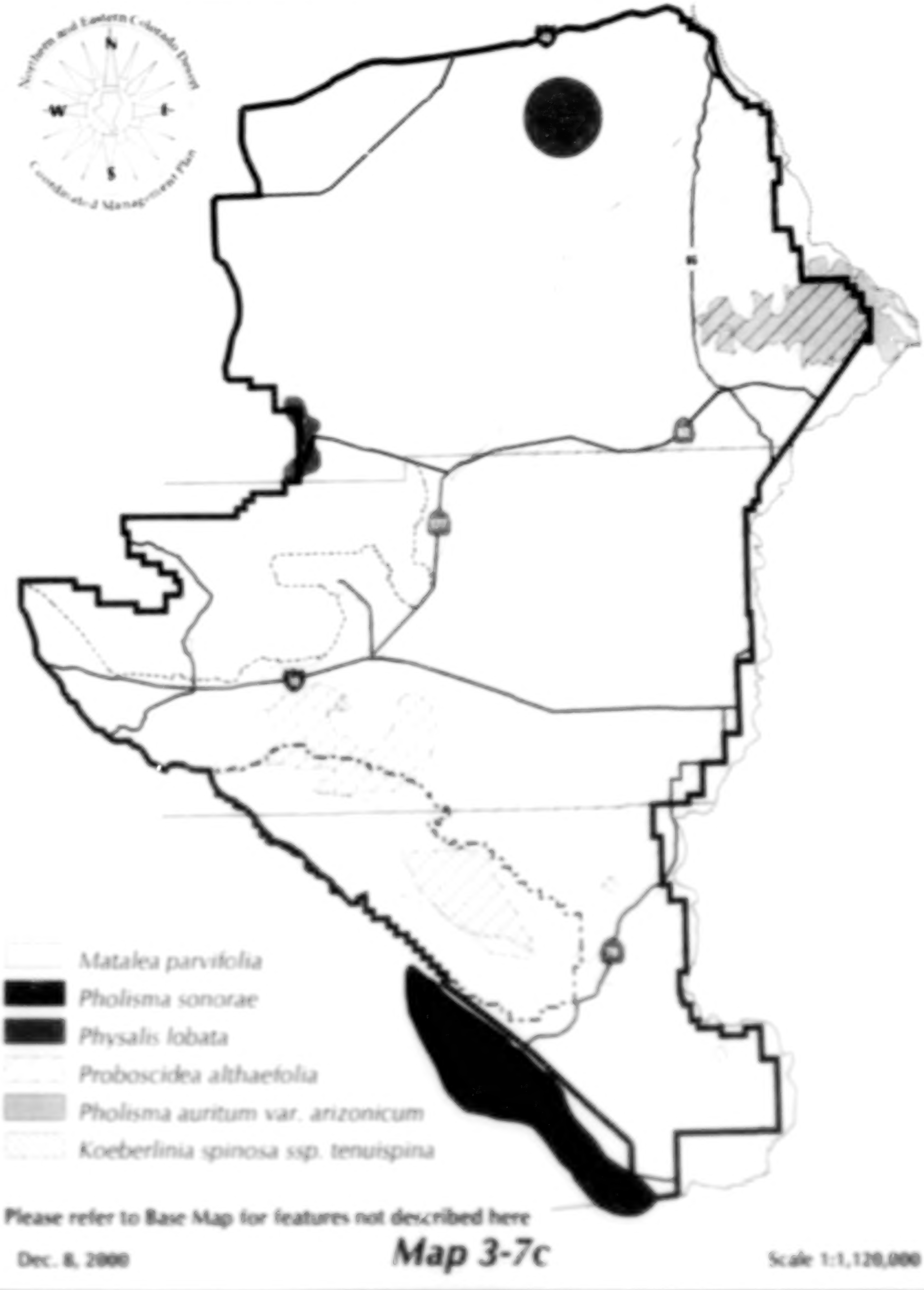
Dec. 8, 2000

Map 3-7b

Scale 1:1,120,000

BEST COPY AVAILABLE

Special Status Species - Plants


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
Matalea parvifolia
Pholisma sonorae
Physalis lobata
Proboscidea althaefolia
Pholisma auritum var. arizonicum
Koeberlinia spinosa ssp. tenuispina

Please refer to Base Map for features not described here

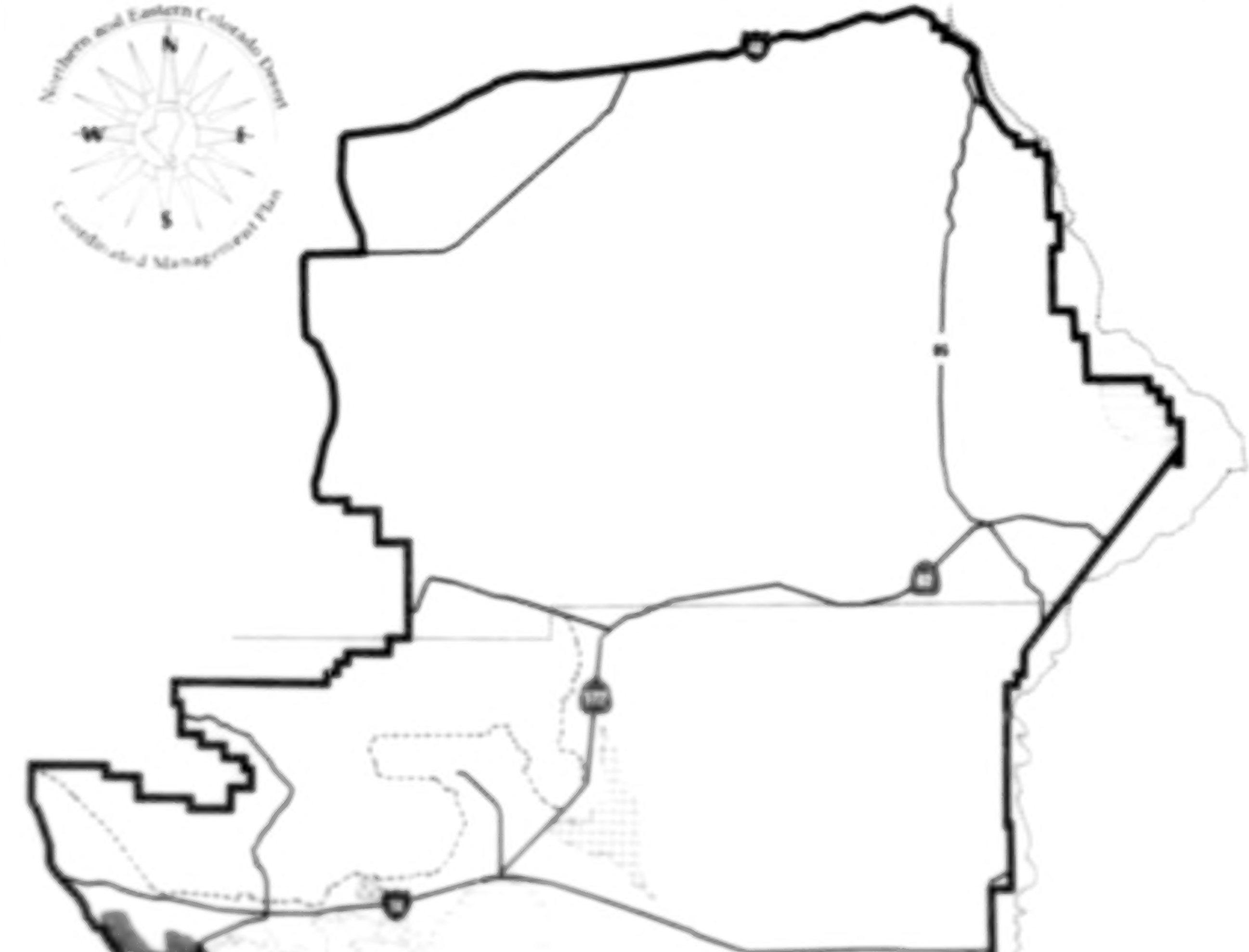
Dec. 8, 2000

Map 3-7c

Scale 1:1,120,000

BEST COPY AVAILABLE

Special Status Species - Plants


Northern and Eastern Colorado Desert
Coordinated Management Plan
N
W
E
S
Opuntia munzii
Palafoxia arida var. gigantea
Salvia greatae
Senna covesii
Stylocine sonorensis
Wislizenia refracta var. palmeri
Xylorhiza cognata

Please refer to Base Map for features not described here

Dec. 8, 2000

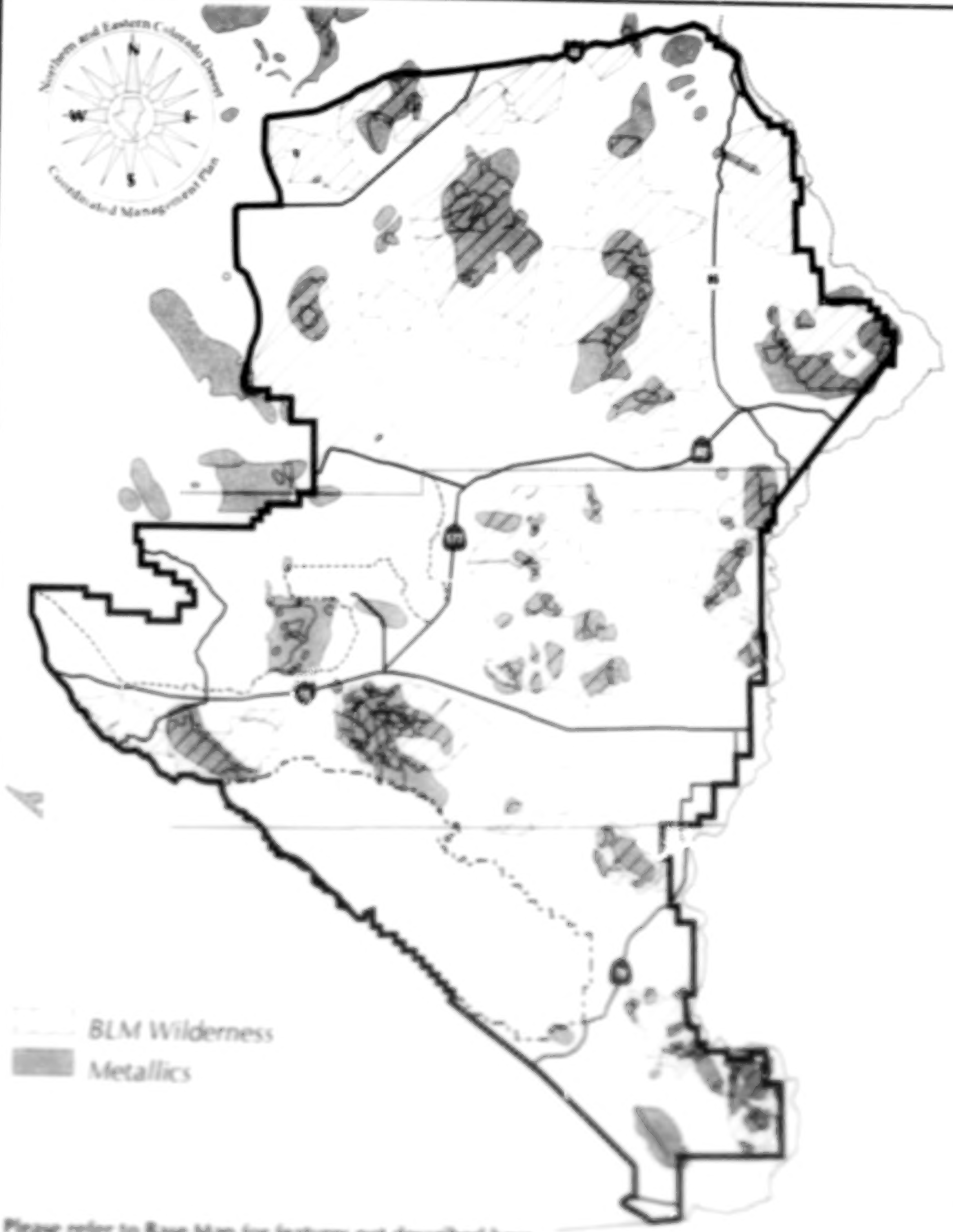
Map 3-7d

Scale 1:1,120,000

BEST COPY AVAILABLE

930

Mineral Potential - Metallics


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
BLM Wilderness
Metallics

Please refer to Base Map for features not described here

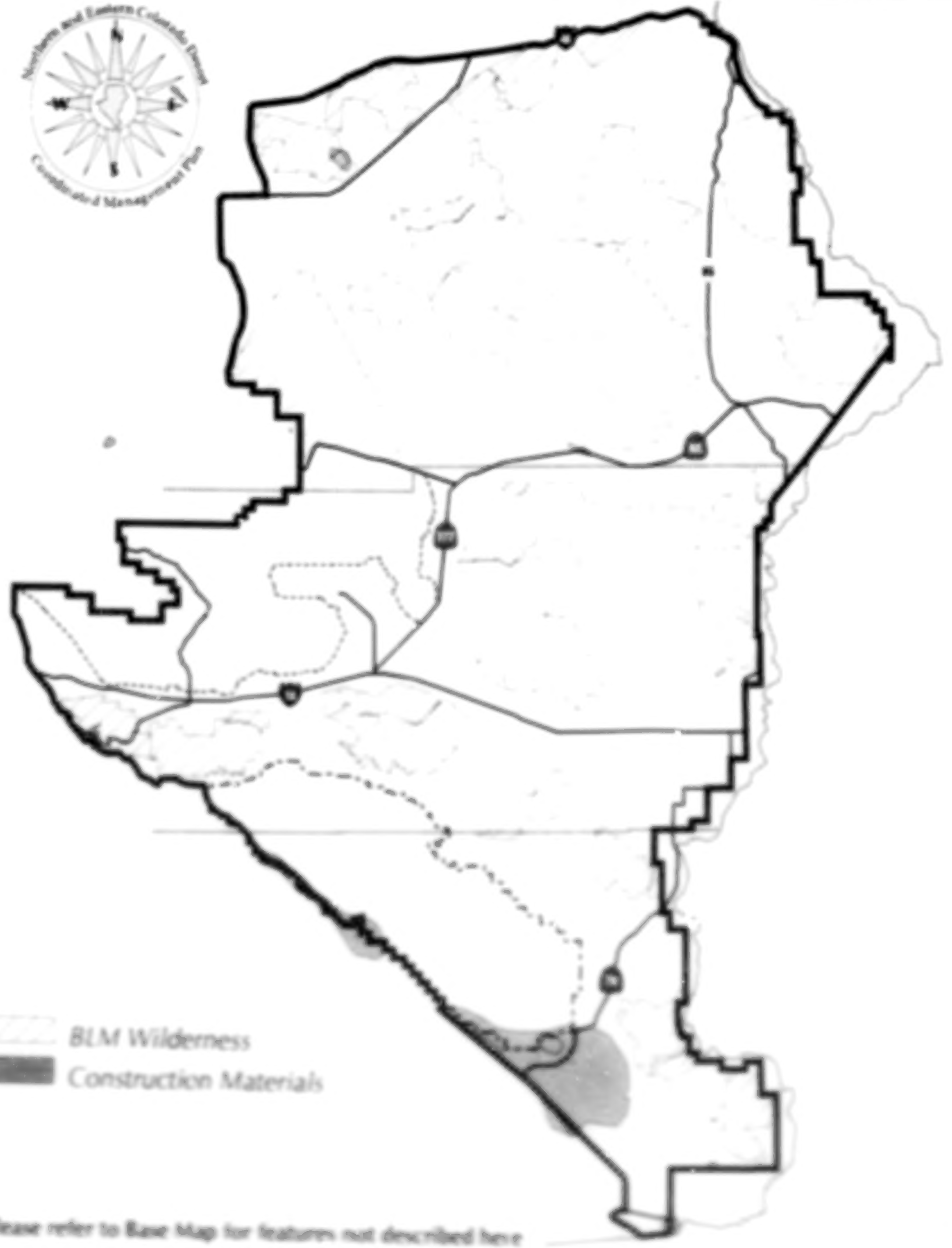
Jan. 16, 2001

Map 3-8

Scale 1:1,120,000

BEST COPY AVAILABLE

Mineral Potential - Construction


Northern and Eastern Colorado Desert
Coordinated Management Plan
N
W
E
S
BLM Wilderness
Construction Materials

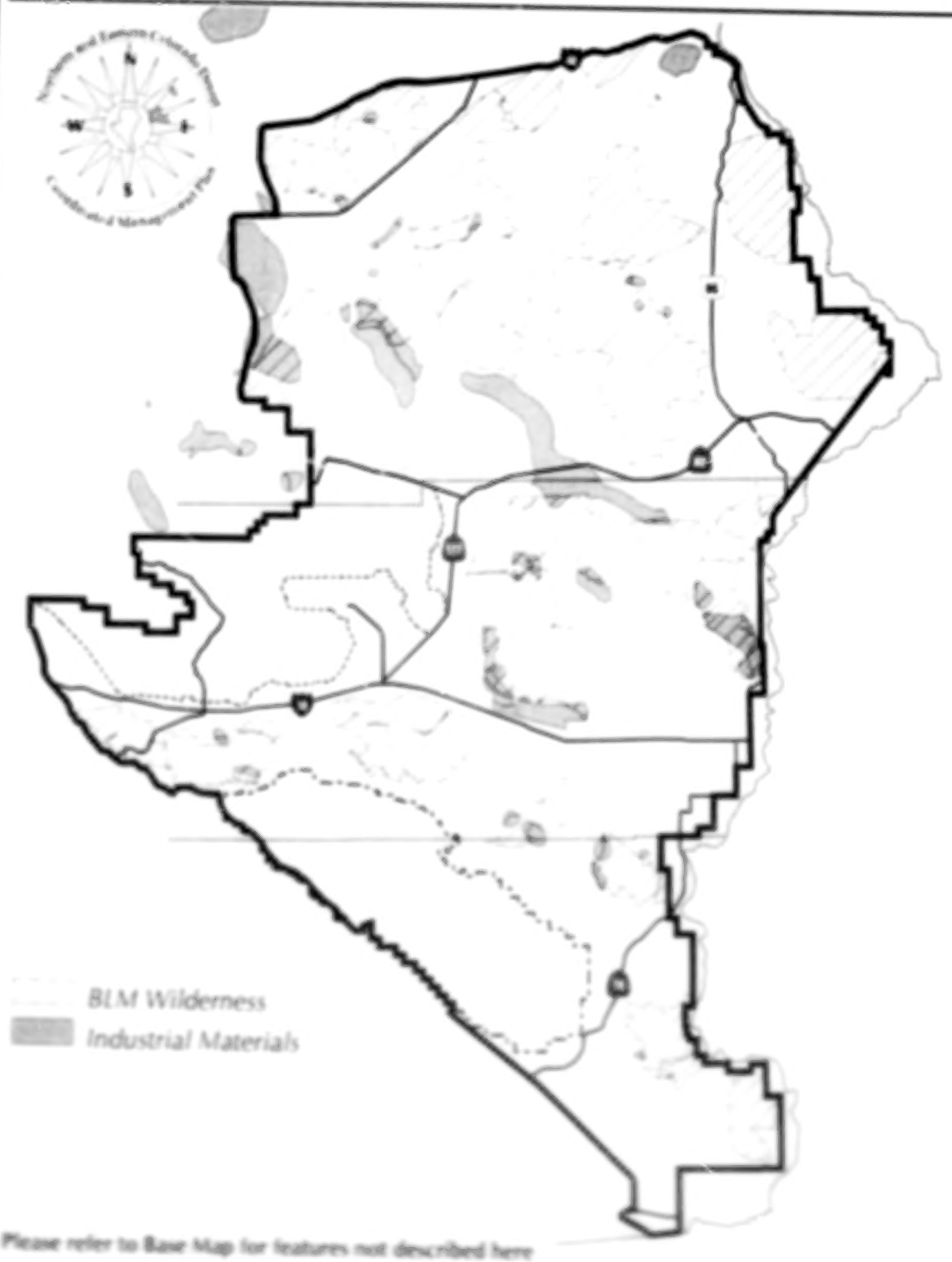
Please refer to Base Map for features not described here

Jan. 16, 2001

Map 3-9

Scale 1:1,120,000

Mineral Potential - Industrial


Northern and Eastern Colorado Desert Coordinated Management Plan
N
E
S
W
BLM Wilderness
Industrial Materials

Please refer to Base Map for features not described here

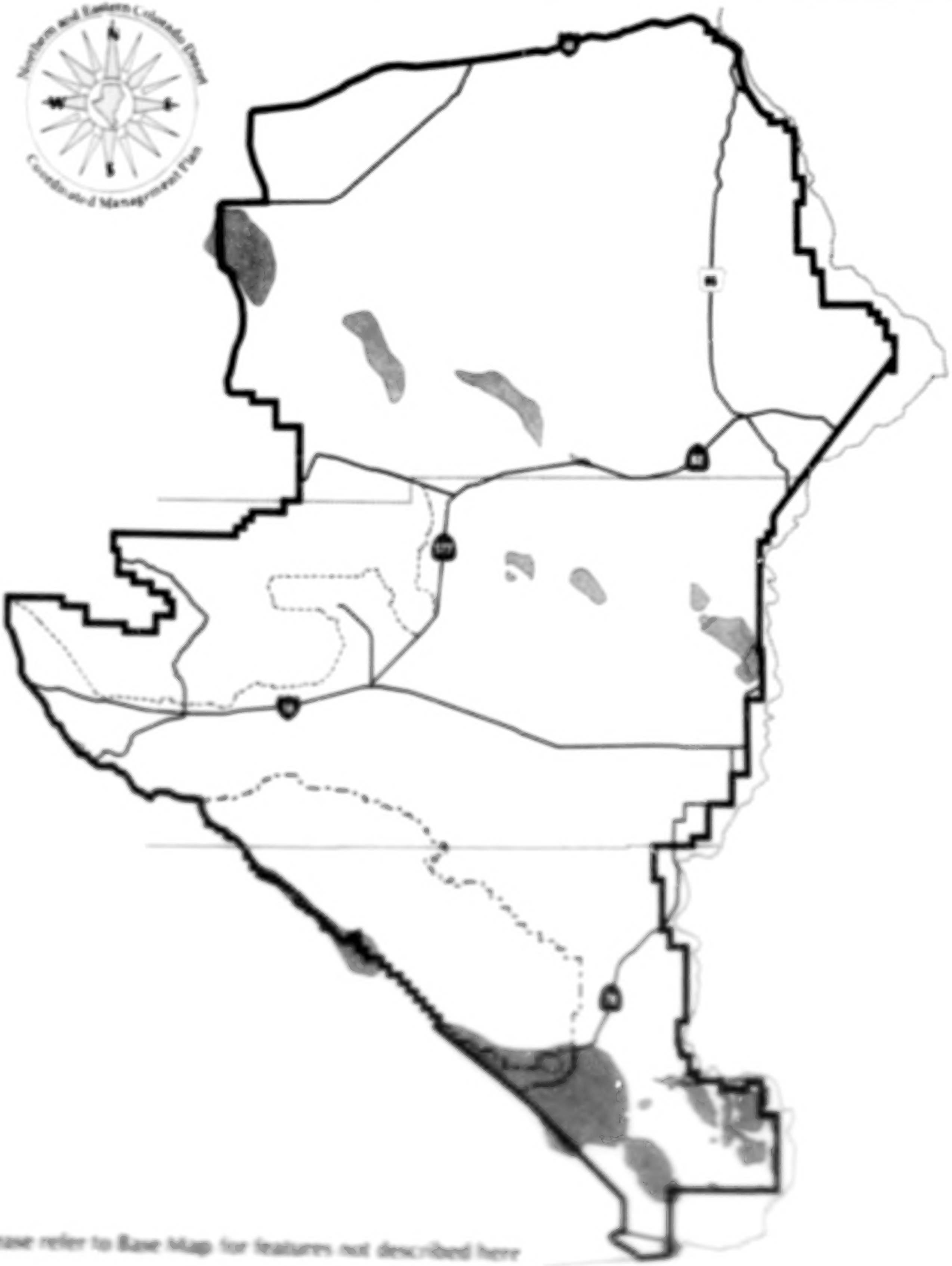
Jan. 16, 2001

Map 3-10

Scale 1:1,125,000

BEST COPY AVAILABLE

High Mineral Development Potential


Northern and Eastern Colorado Desert
Coordinated Management Plan
N
S
E
W

Please refer to Base Map for features not described here

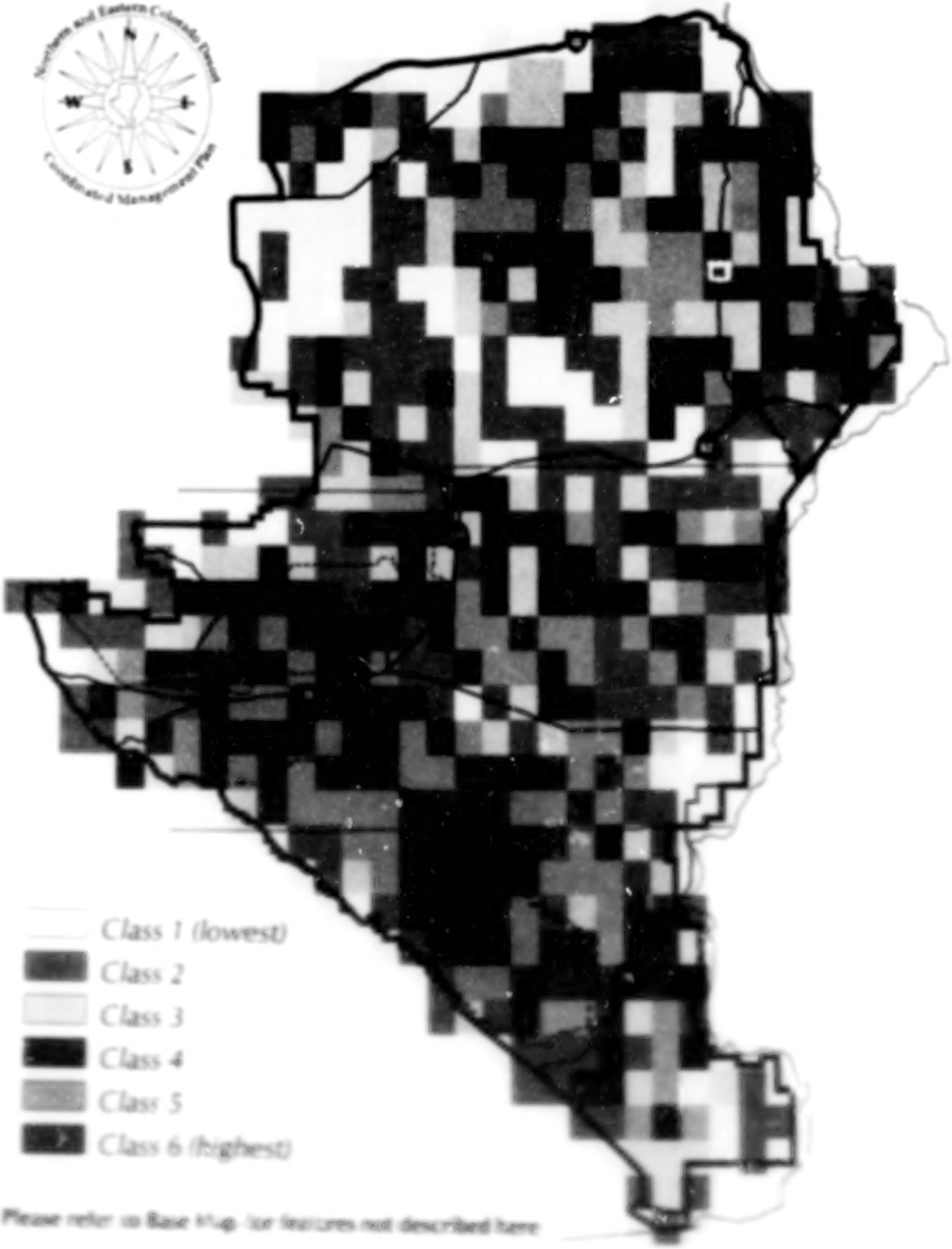
Dec. 5, 2000

Map 4-1

Scale 1:1,120,000

BEST COPY AVAILABLE

Ecological "Hotspots" (Equal-Weighted Analysis)



Please refer to Base Map for features not described here

Dec. 5, 2000

Map H-1

Scale 1:1,120,000

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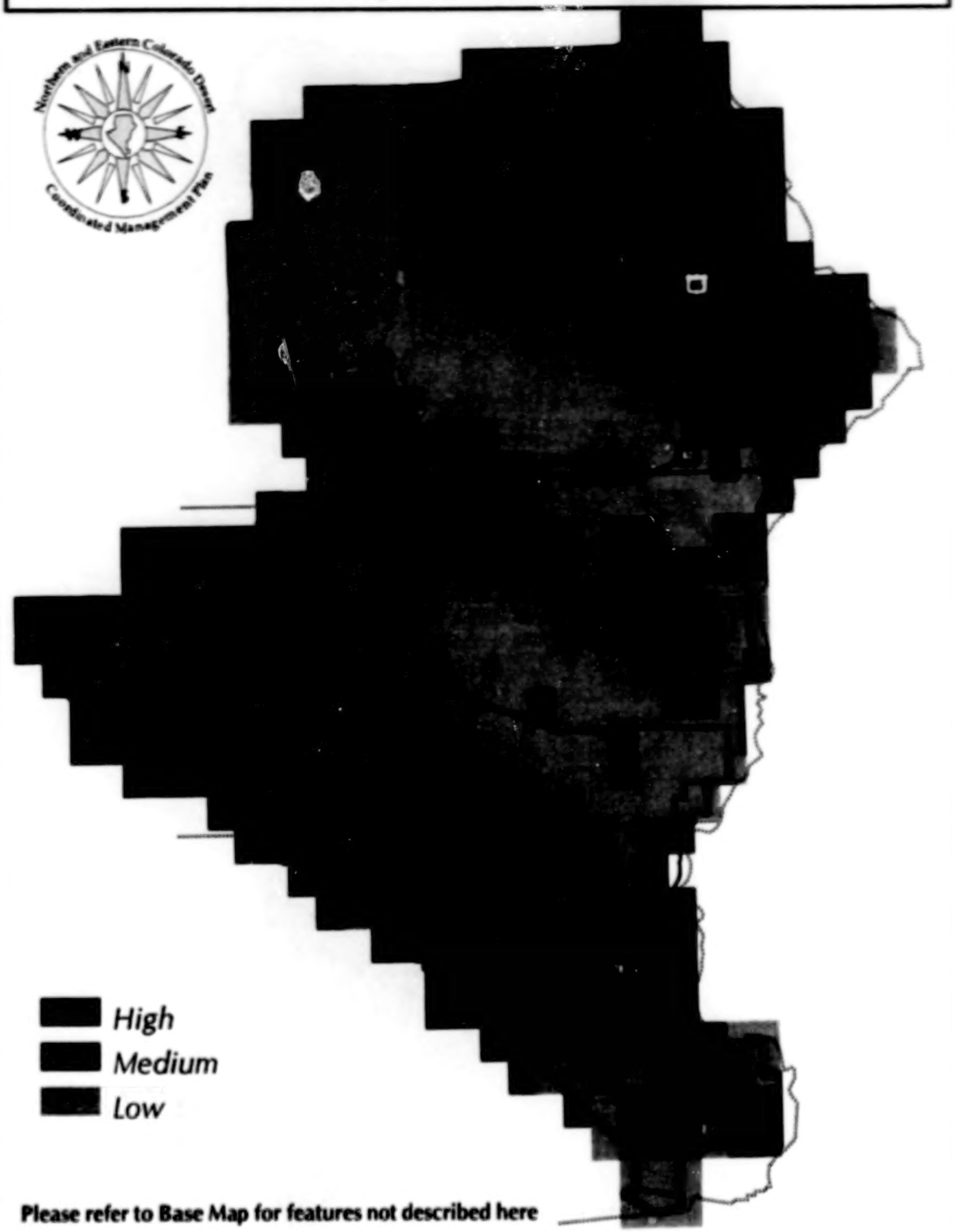
Plant Species Richness


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
High
Medium
Low

Please refer to Base Map for features not described here

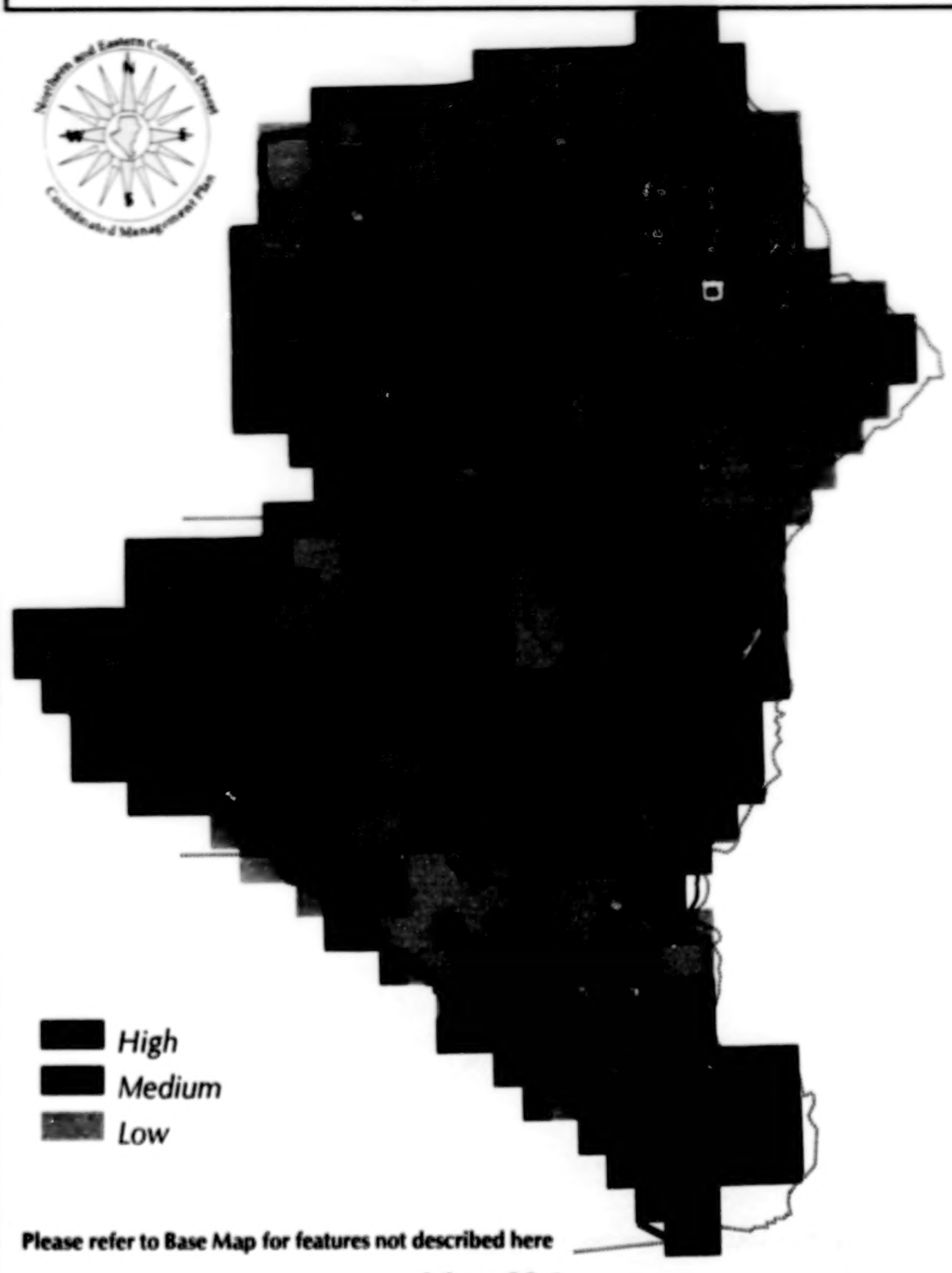
Dec. 5, 2000

Map H-2

Scale 1:1,120,000

BEST COPY AVAILABLE

Animal Species Richness


Northern and Eastern Colorado Desert Coordinated Management Plan
N
W
E
S
High
Medium
Low

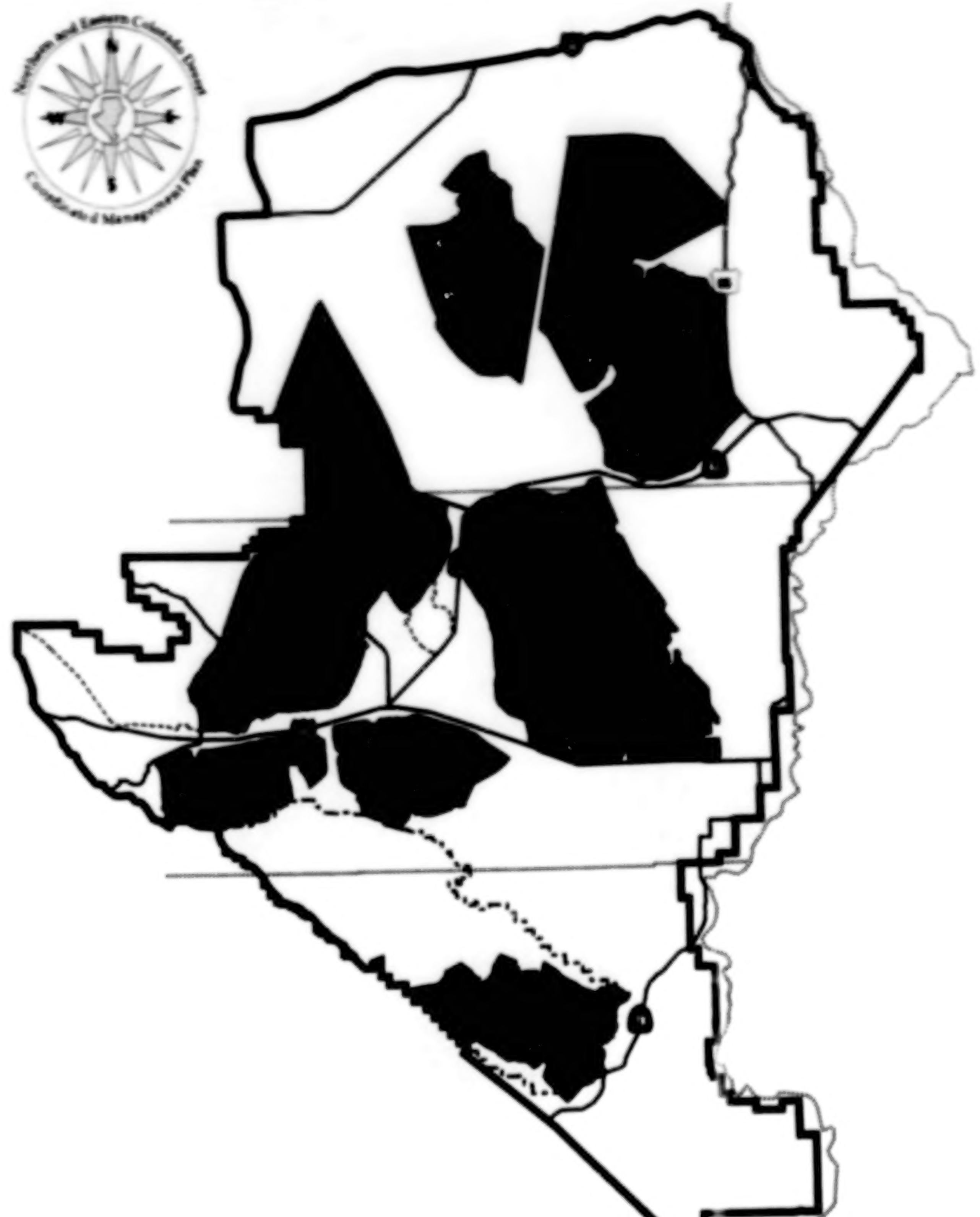
Please refer to Base Map for features not described here

Dec. 5, 2000

Map H-3

Scale 1:1,120,000

Current Management
Largest Unfragmented Areas


Northern and Eastern Colorado Desert
Coordinated Management Plan

Please refer to Base Map for features not described here

Dec. 5, 2000 *Map H-4* **Scale 1:1,120,000**

APPENDIX B
Standards and Guidelines

Standards and Guidelines

Congress passed the Taylor Grazing Act in 1934 to direct occupancy and use of public rangelands to preserve natural resources from destruction or unnecessary injury, provide for the orderly use, improvement, and development of rangelands. Since enactment of the Taylor Grazing Act, several studies and reports have identified problems on the western rangelands. The Public Rangelands Improvement Act (PRIA, 1978) identified that rangelands are producing below their potential, rangelands will remain in an unsatisfactory condition and some areas may decline further under present levels of funding, and these unsatisfactory conditions present a high risk of soil loss, water loss, loss of or threats to fish and wildlife habitat, loss of forage for livestock and grazing animals, and unpredictable and undesirable long term local and regional climatic and economic changes.

Resource conditions have improved since passage of PRIA, but many riparian areas continue to be degraded and are not functioning properly. The Director of the Bureau of Land Management requested the agency's National Public Lands Advisory Council to recommend ways to improve BLM's rangeland management program. In 1991, the Council commissioned a blue-ribbon panel of professional ecologists and rangeland managers who produced a report titled *Rangeland-Program Initiatives and Strategies*. Their report concluded that BLM's primary objectives should be to protect the basic components of rangelands; soil, water, and vegetation.

The BLM initiated a new effort, in 1993, commonly referred to as "Rangeland Reform 94." The focus of this effort is to enhance the environmental health of public rangelands. This effort was assisted with the publication of *Rangeland Health: New Methods to Classify, Inventory, and Monitor Rangelands*, 1994. The report was published by the Committee on Rangeland Classification, Board of Agriculture, of the National Research Council. The report explained criteria and indicators of rangeland health, assessment practices, and inventory and monitoring requirements.

The "Rangeland Reform" initiative culminated in a national environmental impact statement to provide grazing management direction to improve ecological conditions while providing for sustainable development on the land. In 1995, the Secretary of the Interior developed new grazing regulations to implement needed changes in BLM's rangeland management program.

Purpose and Need

The "Rangeland Reform 94" effort resulted in the publication of a final rule for Grazing Administration of public lands, on February 22, 1995, that became effective August 21, 1995. Under section 4108.2 of these regulations the BLM State Director is required to develop state or regional standards, and guidelines for grazing administration in consultation with BLM Resource Advisory Council (District Advisory Council), other agencies, and the public. The purpose of the standards, and guidelines is indicated from the following quotations from the Federal Register, Vol. 60, No. 35, page 9956, dated February 22, 1995:

The guiding principles for standards and guidelines require that State or regional standards and guidelines address the basic components of healthy rangelands.

The Department intends that the standards and guidelines will result in a balance of sustainable development and multiple use along with progress towards attaining healthy, properly functioning rangelands.

The Department believes that by implementing grazing-related actions that are consistent with the fundamentals of Subpart 4180.1 and the guiding principles of Subpart 4180.2, the long-term health of public rangelands can be ensured.

Fundamentals of Rangeland Health

In its report, the Committee for the National Research Council defined rangeland health as "...the degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained, " and in particular those "ecological processes that are most important in sustaining the capacity of rangeland to satisfy values and produce commodities." The committee from the Council recommended "...the determination of whether a rangeland is healthy, at risk, or unhealthy should be based on the evaluation of three criteria: degree of soil stability and watershed function, integrity of nutrient cycles and energy flow, and presence of functioning recovery mechanisms" (Ibid). When the factors of a healthy rangeland site are met then values and commodities will be conserved. The "Rangeland Health Matrix" developed by the National Research Council can be found in Appendix XXX.

Under Title 43 of the Code of Federal Regulation, Section 4180 of the grazing regulations directs the authorized officer to ensure the following conditions of rangeland health exist:

(a) Watersheds are in or are making significant progress toward, properly functioning physical condition, including their upland, wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and the timing and duration of flow.

(b) Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.

(c) Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established BLM management objectives such as meeting wildlife needs.

(d) Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal Candidate and other special status species.

Items (a) and (b) prescribe physical and biological characteristics of rangeland health. Items (c) and (d) describe legal requirements that will be met when healthy rangelands are properly functioning.

Attributes for Standards and Guidelines

The fundamentals of rangeland health, guiding principles for standards and the fallback standards address ecological components that are affected by all uses of public rangelands, not just livestock grazing. However, the scope of this final rule, and therefore the fundamental of rangeland health of part 4180.1, and the standards and guidelines to be made effective under part 4180.2, are limited to grazing administration (Federal Register, Vol. 60, No. 35, pg. 9970-9971).

The following are characteristics of standards and guidelines.

Standard:

1. is criterion regarding a resource quality or quantity upon which a judgement or decision is based (e.g., a statement concerning expected ecosystem or rangeland health);
2. is measurable;
3. establishes parameters within which resources uses and management activities can be conducted;

and

4. should have observable indicators.

Guideline:

1. describes a practice, prescription, method or technique used to ensure that grazing management activities meet standards;
2. is either a set of management practices from which one or more practices is selected; or is a specific, required management practice;
3. could be adapted or changed when monitoring or other information indicates the guidelines are not effective or a better means of meeting applicable standard exists.

Standards and Guidelines- Constraints and Development

1. The standards for public land health apply to resource uses and activities undertaken on the public lands. The guidelines for livestock grazing apply only to livestock grazing management practices. Guidelines for activities other than livestock grazing are not proposed at this time; however, BLM intends to formulate additional guidelines in the future as opportunities present themselves.

2. The standards and the guidelines for livestock grazing are subject to the approval of the Secretary of Interior. Pending Secretarial approval, the National Fallback Standards and Guidelines apply.

3. The intent of the standards and guidelines is to ensure a balance of sustainable development and multiple use along with progress toward attaining healthy, properly functioning ecosystems.

4. The standards and applicable guidelines will be implemented through terms and conditions of permits, leases, and other authorizations or actions issued or undertaken in accordance with BLM's approved land use plans.

5. To the extent possible, implementation will be determined and applied through collaborative management approaches with other land owners, organizations, and agencies on a regional or watershed scale, or in relation to discreet land use plan units such as areas designated for OHV use as open, limited, or closed.

6. At a minimum, implementation will be coordinated and in consultation with the affected permitees/lessees, the appropriate state agency, tribe, and interested public.

7. BLM's grazing regulations require that "appropriate action" be taken when "existing grazing management practices or levels of grazing use..are significant factors in failing to achieve the standards and... guidelines." BLM will take corrective action as practicable for other management practices or uses not meeting the standards.

8. Some areas may require years to fully achieve the standards, due to natural factors such as climatic conditions, soils, presence of naturalized non-native plant species, and other related factors.

9. The values and demand for use of the public lands will continue to increase and be diverse.

10. BLM will not arbitrarily eliminate or unreasonably restrict an existing use otherwise allowable by law or regulation. In applying the standards and any applicable guidelines, BLM will emphasize a balanced approach to resource management, taking into account such factors as context and intensity of impacts; the opportunities for reclamation, restoration, or rehabilitation; and possible

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mitigation including off-site mitigation.

Resource Advisory Council Direction

Under the February 22, 1995, rulemaking, the Secretary of the Interior called for the formation of Resource Advisory Councils (RACs) to advise the BLM about defining areas and the development of standards and guidelines for those areas. The RACs will advise the BLM concerning preparation, amendment, and implementation of land use plans. The existing California Desert District Advisory Council (DAC) will serve as the California Desert District's Resource Advisory Council. The rulemaking directs the State Director to coordinate with Indian tribes, the pubic, and affected State and Federal agencies during development of standards and guidelines.

The staffs in areas once defined as the Bakerfield, Ukiah, and Susanville Districts, coordinated on a statewide planning effort called *Rangeland Health Standards and Guidelines for California and Northwestern Nevada, Environmental Impact Statement* to adopt regional standards for rangeland health and guidelines for grazing management on BLM-administered lands. The DAC chose not to initiate a new planning process for the express purpose of analyzing livestock standard and guidelines nor contribute staff to the statewide effort. The Council preferred instead to develop standards for all public land uses through several ongoing planning efforts. In addition, they felt it would be more efficient to address standards at the Planning Area level instead of desert-wide, and the CDCA Plan primarily conforms to the fundamentals of rangeland health. These planning efforts include the Western Mojave Coordinated Management Plan, Northern and Eastern Mojave Planning Effort, Coachella Valley Habitat Conservation Plan, Northern and Eastern Colorado Desert Coordinated Management Plan, and Plan Amendment for the South Coast Resource Management Plan and the Eastern San Diego Area Plan.

The DAC is actively involved in development of Standards for Public Land Health and Guidelines for Grazing Management. Early in the process a subcommittee was formed to develop a proposal for standards and guidelines. To date, the standards have been developed and are listed in Alternative 2. Upon completion of the Northern and Eastern Mojave Planning Effort the State Director will submit a set of standards and guidelines for approval by the Secretary of the Interior. Adoption of the regional standards will occur when the Secretary concurs. Until adoption of the regional standards, the fallback standards and guidelines or existing planning and activity plan guidance will be utilized, dependent upon which one more closely matches the fundamentals of rangeland health.

At a minimum State or regional guidelines must address the following:

1. maintain or promote adequate amounts of vegetative ground cover, including standing plant material and litter, to support infiltration, maintain soil moisture storage, and stabilize soils;
2. maintain or promote subsurface soil conditions that support permeability rates, appropriate to climate and soils;
3. Maintain, improve or restore riparian-wetland functions including energy dissipation, sediment capture, groundwater recharge and stream bank stability;
4. Maintain or promote stream channel morphology (e.g. gradient width/depth ratio, channel roughness and sinuosity) and functions appropriate to climate and landform;Maintain or promote the appropriate kinds and amounts of organisms, plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;
5. Promote the opportunity for seedling establishment of appropriate plant species when climate conditions and space allow;
6. Maintain, restore or enhance water quality to meet management objectives, such as meeting wildlife needs;
7. Restore, maintain or enhance habitats to assist in the recovery of Federal threatened or endangered species;

8. Restore, maintain or enhance habitats of Federal Proposed, Category 1 and 2 Federal candidate, and other special status species to promote their conservation;
9. Maintain or promote the physical and biological conditions to sustain native populations and communities;
10. Emphasize native species in the support of ecological function; andIncorporate the use of non-native plant species only in those situations in which native species are not available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health;
11. Emphasize native species in the support of ecological function; and
12. Incorporate the use of non-native plant species only in those situations in which native species are not available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health.

REGIONAL STANDARDS 1/ For PUBLIC LAND HEALTH
Recommended by The
California Desert District Advisory Council

Soils:

Soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, geology, landform, and past uses. Adequate infiltration and permeability of soils allow accumulation of soil moisture necessary for optimal plant growth and vigor, and provide a stable watershed.

As indicated by:

- Canopy and ground cover are appropriate for the site;
- There is diversity of plant species with a variety of root depths;
- Litter and soil organic matter are present at suitable sites;
- Maintain the presence of microbiotic soil crusts that are in place;
- Evidence of wind or water erosion does not exceed natural rates for the site; and
- Hydrologic and nutrient functions maintained by permeability of soil and water infiltration are appropriate for precipitation.

Native Species:

Healthy, productive and diverse habitats for native species, including special status species (Federal T&E, Federal proposed, Federal candidates, BLM sensitive, or California State T&E, and CDD UPAs) are maintained in places of natural occurrence.

As indicated by:

- Photosynthetic and ecological processes continue at levels suitable for the site, season, and precipitation regimes;
- Plant vigor, nutrient cycle, and energy flow are maintaining desirable plants and ensuring reproduction and recruitment;
- Plant communities are producing litter within acceptable limits;
- Age class distribution of plants and animals are sufficient to overcome mortality fluctuations;
- Distribution and cover of plant species and their habitats allow for reproduction and recovery from localized catastrophic events;
- Alien and noxious plants and wildlife do not exceed acceptable levels;
- Appropriate natural disturbances are evident; and
- Populations and their habitats are sufficiently distributed to prevent the need for listing special status species.

Riparian/Wetland and Stream Function:

Wetland systems associated with subsurface, running, and standing water, function properly and have the ability to recover from major disturbances. Hydrologic conditions are maintained.

As indicated by:

Vegetative cover will adequately protect banks, and dissipate energy during peak water flows;

- Dominant vegetation is an appropriate mixture of vigorous riparian species;
- Recruitment of preferred species is adequate to sustain the plant community;
- Stable soils store and release water slowly;
- Plant species present indicate soil moisture characteristics are being maintained;
- There is minimal cover of invader/shallow-rooted species, and they are not displacing deep-rooted native species;
- Maintain shading of stream courses and water sources for riparian dependent species;
- Stream is in balance with water and sediment being supplied by the watershed;
- Stream channel size and meander is appropriate for soils, geology, and landscape; and
- Adequate organic matter (litter and standing dead plant material) is present to protect the site and to replenish soil nutrients through decomposition.

Water Quality:

Water quality will meet State and Federal standards including exemptions allowable by law.

As indicated by:

- Dissolved oxygen levels, aquatic organisms and plants (e.g., macro invertebrates, fish and algae) indicate support of beneficial uses;
- Chemical constituents, water temperature, nutrient loads, fecal coliform and turbidity are appropriate for the site or source; and
- Best Management Practices will be implemented.

Air Quality:

Air quality will meet State and Federal standards including exemptions allowable by law.

- Best Management Practices will be implemented.

Note: 1/ Past and current assessments are an integral part of evaluating these standards.

REGIONAL GUIDELINES For GRAZING MANAGEMENT
Recommended by The
California Desert District Advisory Council

Resource conditions of each allotment will be routinely assessed to determine if Public Land Health Standards are being met. In those areas not meeting a Standard, monitoring processes will be established if they do not presently exist to monitor indicators of health until the Standard or resource objective has been attained. Activity plans for other uses or resources that overlap an allotment could have prescribed resource objectives that may further constrain grazing activities, e.g., ACEC. In an area where a Standard has not been met, the results of monitoring the modification or implementation of grazing management actions will be reviewed annually. During the final phase of the assessment process, the Determination will schedule the next assessment of resource conditions. Livestock trailing network, grazed plants, livestock facilities, and animal waste are expected impacts in all grazing allotments and will be considered during analysis of the assessment/monitoring process. To attain Standards and resource objectives, the best available science will be used to determine appropriate grazing management actions. Cooperative funding and assistance from other agencies, individuals, and groups will be sought to collect prescribed monitoring data for indicators of each Standard.

- Facilities are to be located away from riparian-wetland areas wherever they conflict with achieving or maintaining riparian-wetland functions.

- The development of springs and seeps or other projects affecting water and associated resources will be designed to protect the ecological functions and processes of those sites.

- Grazing activities at an existing range improvement that conflict with achieving proper functioning conditions (PFC) and resource objectives for wetland systems (lentic, lotic, springs, addits, and seeps) will be modified so PFC and resource objectives can be met, and incompatible projects will be modified to bring into compliance. The BLM will consult, cooperate, and coordinate with affected interests and livestock producer(s) prior to authorizing modification of existing projects and initiation of new projects. New range improvement facilities are to be located away from wetland systems if they conflict with achieving or maintaining PFC and resource objectives.

- Supplements will be located well away from wetland systems.

- Management practices will maintain or promote perennial stream channel morphology (e.g., gradient, width/depth ratio, channel roughness, and sinuosity) and functions that are appropriate to climate and landform.

- Grazing management practices are to meet State and Federal water quality standards. Where impoundments (stock ponds) and troughs that have a sustained discharge yield of less than 200 gallons per day to surface or groundwater are excepted from meeting State drinking water standards per SWRCB Resolution Number 88-63.

- In the California Desert Conservation Area all wildfires in grazing allotments will be suppressed. However, to restore degraded habitats infested with invasive weeds (e.g., tamarisk) prescribed burning may be utilized as a tool for restoration on a case by case basis. Prescribed burns may be used as a management tool for chaparral plant communities in the South Coast Region, where fire is a natural part of the regime.

- When climatic conditions and space allow, seedling establishment of native species will be promoted.

- Grazing on designated ephemeral (annual and perennial) rangeland is allowed to occur only if reliable estimates of production have been made, an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and adverse effects on perennial species are avoided.

- During prolonged drought, range stocking will be reduced to scientifically based carrying capacity, based on climatic conditions. Livestock utilization of key perennial species on year-long allotments will be checked about March 1 when the Palmer Severity Drought Index/Standardized Precipitation Index indicates dry conditions are expected to continue.

- Through the assessment process or monitoring efforts, the extent of invasive and/or exotic plants and animals will be recorded and evaluated for future control measures. Methods and prescriptions will be implemented, and an evaluation will be completed to ascertain future control measures.

- Restore, maintain or enhance habitats to assist in the recovery of Federally listed threatened and endangered species. Restore, maintain or enhance habitats of special status species including Federal proposed, Federal candidates, BLM sensitive, or California State T&E to promote their conservation.

- Grazing activities will support biological diversity across the landscape, and native species and microbiotic crusts are to be maintained.

- Experimental and research efforts will be encouraged to provide answers to grazing management and related resource concerns through cooperative and collaborative efforts with outside agencies, groups, and entities.
- Based on Holechek's (et al., 1998) work or the best available scientific information, livestock utilization level of key perennial species of the Mojave Desert (range type) will not exceed 40 percent on ranges that are grazed during the dormant season and are meeting standards. Rangelands that are grazed during the active growing season and are meeting standards will not exceed 25 percent utilization of key species. The utilization range between 25 and 40 percent is for those forage species with a proper use factor that will allow consumption up to and between 25 and 40 percent otherwise lower use limits will prevail. Until modified with new information, utilization of the following general range types will be prescribed for grazing use.

Utilization Guidelines for Different Range Types in the CDD
(adapted from Holechek et al. and Holechek 1991)

Average Annual Precipitation		Percent Use of Key Species for Moderate Grazing[A]	Range Types (1)	Reference
cm.	in.			
10-13	4-8	25-35	Salt desert shrub land	Hutchings and Stewart 1953; Cook and Child 1971
13-30	8-12	30-40	Semidesert grass and shrubland	Valentine 1970; Paulsen and Ares 1961; Martin and Cable 1974; Holechek 1991
13-30	8-12	30-40	Sagebrush grassland	Pechanec and Stewart 1949; Laycock and Conrad 1981
25-100	10-40	50-60	California annual grassland	Hooper and Heady 1970; Bartolome et al. 1980; Rosiere 1987
40-130	16-50	30-40	Mountain shrub land	Pickford and Reid 1948; Skovlin et al. 1976
40-130	16-50	30-40	Oak woodland	Pieper 1970
25-45	9-16	30-40	Pinyon-juniper woodland	Pieper 1970

A. Rangelands in good condition and/or grazed during the dormant season can withstand the higher utilization level. Those in poor condition or grazed during active growth should receive the lower utilization.

Appendix C

Grazing Lease Terms and Conditions From Current Biological Opinions

Mitigation Measures for Sheep Grazing Activities in Desert Tortoise Habitat

1. Turnout of sheep shall not occur until production of 200 pounds air dry weight (ADW) per acre of ephemeral forage is available. The lessee shall remove sheep from an area of use or the entire allotment if ephemeral forage production falls below 200 pounds ADW per acre.

2. No grazing is authorized except as approved through grazing application. All herders shall have a copy of the current use authorization in their possession and a copy posted at the herder's camp site. When sheep are trailed outside of the allotment, all herders are required to have a copy of the trailing authorization in their possession.

3. A band of sheep is limited to no larger than 1,000 adult sheep with an approximately equal number of lambs.

4. Sheep are to be widely scattered or in a loose pattern when grazing through an area, and grazing sheep are to move through an area only once during the grazing season.

5. Sites where sheep are bedded and watered shall be change daily. Bedding or watering sites are to be at least ¼ mile from any previous site. Sheep are to be watered on or adjacent to existing dirt roads (within 25 feet) or existing disturbed or open areas cleared of shrubs from past uses.

6. Stopping and parking of vehicles, and vehicular camping along routes of travel is limited to within 50 feet of all routes, except in OHV open areas, in multiple-use Class "L" and "M" as described in the California Desert Conservation Area Plan.

7. A herder's camp site or camp trailer shall not remain in the same location for more than seven days. Establishment of a camp shall be at least one mile from any previous camp location. To eliminate or reduce scavenging of trash by desert tortoise predators, trash and garbage shall be removed from each camp site each day and no trash or garbage shall be buried at the camp site. All sheep carcasses within 300 feet of a road shall be removed. Sheep carcasses are to be removed from anywhere in OHV open areas, and permission from the authorized officer is required to remove dead sheep within a wilderness.

8. Within 15 days of the close of the authorized grazing period, the lessee shall submit to the field office a BLM-supplied map to delineate areas of daily grazing use within the allotment.

Mitigation Measures for Cattle Grazing Activities in Desert Tortoise Habitat

1. Utilization of key perennial forage species shall not be exceed 40 percent from February 15 to October 14 in the Lazy Daisy Allotment. No averaging of utilization data among perennial key forage species or key areas shall occur. When utilization approaches authorized limits in any key area, steps shall be taken to redistribute or reduce cattle use for that key area. Grazing use shall be curtailed to protect perennial plants during severe or prolonged drought. These steps may

include removal of cattle or, where feasible, turning off water at troughs to reduce adjacent grazing use.

2. Cattle shall be evenly dispersed throughout their area of use, and herding shall be limited to shipping and animal husbandry practices. Grazing use shall be managed according to grazing regulations, allotment management plans, CDCA Plan, and current biological opinions. Grazing use will be managed to improve trends for native perennial and annual plants where site potential permits. Galleta grass shall be a key forage species wherever it is found. Feeding of roughage, such as hay, hay cubes, or grains to supplement forage quantity, is not allowed.

3. All cattle carcasses found within 300 feet of any road shall be removed and disposed of in an appropriate manner, and no prior notification to the BLM is necessary if off-road vehicle use is required, but permission from the authorized officer is required to remove animals within wilderness.

4. Temporary, non-renewable (TNR) perennial forage above the "active" grazing use shall be authorized for one-month increments from March 1 to June 1 in Category I desert tortoise habitat. Outside of this period and in Category III habitat, TNR forage shall be authorized for three-month increments.

5. In Category I habitat, authorization of ephemeral forage shall occur when ephemeral forage production is at least 350 pounds ADW per acre. Authorization for ephemeral forage in Category III desert tortoise habitat shall occur when 200 pounds ADW per acre or more of ephemeral forage per acre is available. Any replacement cattle authorized to use ephemeral forage shall be removed from such allotments whenever the thresholds for curtailing ephemeral grazing are reached.

6. Nine Mile Canyon Well in the Lazy Daisy Allotment shall be developed to draw cattle away from Category I habitat. Construction and maintenance of range improvements in Category I and III habitat are limited to existing and proposed facilities listed in Appendices XX and XXX. For all construction, operation, and maintenance of range improvements involving land disturbance in desert tortoise habitat the requirements apply:
   A. Surface disturbance during construction of range improvements shall occur on previously disturbed sites and shall be minimized whenever possible. Routine vehicle use shall be limited to existing roads and disturbed areas, and off-road vehicle activity shall be held to a minimum. Construction of new roads shall be minimized. Construction of new or replacement facilities shall be carried out only from October 15 to March 15, unless specifically authorized due to safety or emergency considerations. After completion of the project, the disturbed soil shall be blended and contoured into the surrounding soil surface. To reduce attraction of desert tortoise predators, debris and trash created during construction or maintenance of a facility will be removed immediately.
   B. Range improvement construction, operation, and maintenance shall be modified as necessary to avoid direct impacts to desert tortoises and their burrows e.g., construction of fences or pipelines near tortoise burrows shall be avoided. Existing access and areas of disturbance shall be utilized when trenching a section of new pipe or during performance of maintenance. Any hazards to desert tortoises that may created, such as auger holes and trenches, shall be monitored by biological monitor at least twice daily for desert tortoises that become trapped. These hazards will be eliminated before workers leave the site.
   C. Prior to land-disturbing activities, a field contact representative (FCR) will be designated to ensure compliance with protective measures stipulations for the desert tortoise and will be responsible for coordinating with the Service. A FCR will have the authority and

responsibility to halt activities in violation of the Service stipulations.

D. Only authorized personnel are permitted to handle desert tortoises. If construction or maintenance of a range improvements endangers the life of a desert tortoise then authorized persons may move the animal a short distance away or hold the animal overnight to release it in the same area the next day.

E. All construction and maintenance workers shall strictly limit their activities and vehicles to areas flagged or cleared by persons authorized by the Service. When off-road use with equipment is required, the lessee is to notify the BLM two working days prior to construction or maintenance of a facility.

APPENDIX D
Northern and Eastern Colorado Desert Planning Area Desert Tortoise Mitigation Measures

INTRODUCTION

These measures are intended to minimize the impacts of authorized actions or projects on desert tortoise and its habitat. In various wordings, they have been included in biological opinions issued by USFWS and in land-use decisions of BLM and others on Federal lands. Livestock grazing mitigation measures have not been reiterated due to their length and because they have been previously applied to the four allotments.

GENERAL MITIGATION MEASURES

1. Designated Persons

In the following measures, a "Qualified Biologist" is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other implementing actions. The person must demonstrate an acceptable knowledge of tortoise biology, mitigation techniques, habitat requirements, sign identification techniques, and survey procedures. Evidence of such knowledge may include work as a compliance monitor on a project in desert tortoise habitat, work on desert tortoise trend plot or transect surveys, or other research or field work on desert tortoise. Attendance at a training course endorsed by the agencies (e.g., Desert Tortoise Council tortoise training workshop) is a supporting qualification.

An "Authorized Biologist" is defined as a wildlife biologist who has been authorized to handle desert tortoises by USFWS and CDFG for this project. Name(s) of proposed Authorized Biologist(s) must be submitted to USFWS and CDFG for approval at least 15 days prior to anticipated need. The tortoise handling protocol is described in Attachment II.

A "Field Contact Representative" (FCR) is defined as a person designated by the project proponent who is responsible for overseeing compliance with desert tortoise protective measures and for coordination with the agency compliance officer. The FCR must be on-site during all project activities. The FCR shall have the authority to halt all project activities that are in violation of these measures. The FCR shall have a copy of all tortoise protective measures when work is being conducted on the site. The FCR may be an agent for the company, the site manager, any other project employee, a biological monitor, or other contracted biologist."

2. Worker Training

All workers, including all participating agency employees, construction and maintenance personnel, and others who implement authorized actions shall be given special instruction. this instruction will include training on distribution, general behavior and ecology, protection afforded by State and Federal endangered species acts (including prohibitions and penalties), and procedures for reporting encounters, and the importance of following the protection measures. The education program may consist of a class or video presented by a Qualified Biologist. It is recommended that workers carry wallet cards with important information while in the field.

3. Compliance

The FCR shall oversee compliance and coordination with the authorizing agency. Compliance shall include conducting species surveys, proper removal of species from areas being impacted, assurance that a sufficient number of Qualified Biologists are present during surface disturbance, and that all conditions of the authorization are being met by proponent, contractors, and workers. The FCR shall have the authority to halt activities that are in not in compliance with the authorization.

Any incident occurring during project activities which is considered by the biological monitor to be in non-compliance with the mitigation plan shall be documented immediately by the biological monitor. The FCR shall ensure that appropriate corrective action is taken. Corrective actions shall be documented by the monitor. The following incidents shall require immediate cessation of the construction activities causing the incident, including 1) imminent threat of injury or death to a desert tortoise; 2) unauthorized handling of a desert tortoise, regardless of intent; 3) operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads, and 4) conducting any construction activity without a biological monitor where one is required (see Term and Condition 2.1). If the monitor and FCR do not agree, the Federal agency's compliance officer shall be contacted for resolution. All parties may refer the resolution to the Federal agency's authorized officer."

After completion of the project, the participating agency which authorized the project shall conduct a review to determine if the project proponent complied with the conditions of authorization. Corrective actions shall be required of the proponent where conditions have not been met.

4. Compensation

A mitigation fee based on the amount of acreage disturbed shall be required of proponents of new development. The formula used to determine the amount of acreage to be acquired is described in the California Statewide Desert Tortoise Management Policy and considers the following factors:

1) Habitat category,
2) Impact on adjacent lands reducing tortoise densities,
3) Whether or not the use will tend to induce growth,
4) Duration of the effect (i.e., short term = less than 10 years, long term = greater than 10 years).
5) Whether or not there is moderate to heavy existing disturbance

These factors are added together to arrive at an acreage multiplier use to determine the amount of compensation acres to be acquired by the project proponent. Category III habitat receives a compensation rate of 1.0 regardless of other factors.

5. Tortoise Seasonal Restrictions

To the extent possible, activities shall be scheduled when tortoises are inactive (November 1-March 15). Dual-sport (non-speed, trail-ride) events and non-emergency maintenance of roads are restricted to this season.

6. Pre-Construction Clearance Surveys

Pre-construction surveys shall be conducted to locate and remove desert tortoises prior to grading or actions which might result in harm to a desert tortoise or which remove tortoise habitat. The survey shall be conducted by an Authorized Biologist within 24 hours of the onset of the surface disturbance unless a tortoise-proof fence has been installed that would prevent re-entry of the animals.

7. Site Fencing and Hazard Removal

During the tortoise active season, March 15 - November 1, no overnight hazards to desert tortoises (e.g., auger holes, trenches, pits, or other steep-sided depressions) shall be left unfenced or uncovered; such hazards shall be eliminated each day prior to the work crew leaving the site.

Large or long-term project areas shall be enclosed with tortoise-proof fencing to keep desert tortoises out of the work area. The fencing shall be wire mesh with a maximum mesh size of ½" square fastened securely to posts. The wire mesh shall extend at least 18 inches above the ground and preferably about 12 inches underground. Where burial is not possible, the lower 12 inches shall be folded outward and fastened to the ground. Any gates or gaps in the fence shall be constructed to prevent entry of tortoises. The fencing shall be removed when restoration of the site is completed.

Temporary fencing shall be required around test sites where trenching or drill holes could trap animals or around other small, short-term projects where tortoises could move into the work area. Occasionally, seasonal restrictions and/or monitoring may be substituted to alleviate the need for fencing.

Fenced areas are to be cleared of tortoises by an Authorized Biologist prior to project activities.

8. Surface Disturbance

All surface disturbing activity shall be limited to the land area essential for the project. In determining these limits, consideration shall be given to topography, public health and safety, placement of facilities, and other limiting factors. Work area boundaries and special habitat features shall be appropriately marked to minimize disturbance. All workers shall strictly limit their activities and vehicles to the areas marked. All workers shall be trained to recognize work area markers and to understand equipment movement restrictions. Where possible, previously disturbed areas shall be used as worksites and for storage of equipment, supplies, and excavated material.

Blading of work areas shall be minimized to the extent possible. Pre-construction activity, such as removal of vegetation, shall occur in the presence of a Qualified Biologist. Disturbance of shrubs shall be avoided to the extent possible. Where shrubs must be disturbed, they shall be crushed rather than bladed or excavated.

Project maintenance and construction, stockpiles of excavated materials, equipment storage, and vehicle parking shall be limited to existing disturbed areas wherever possible. Should use of existing disturbed areas prove infeasible, any new disturbance shall be confined to the smallest practical area, considering topography, placement of facilities, location of burrows or vegetation, public health and safety, and other limiting factors. Special habitat features, particularly tortoise burrows, shall be flagged by the Qualified Biologist so that they may be avoided by installation equipment and during placement of poles and anchors.

9. Biological Monitor

For activities conducted between March 15 and November 1 in desert tortoise habitat, construction and operation activities shall be monitored by a Qualified Biologist approved by BLM. The Qualified Biologist shall be present during all activities in which encounters with tortoises may occur. The Qualified Biologist shall watch for tortoises wandering into the construction areas, check under vehicles, examine excavations and other potential pitfalls for entrapped animals, examine exclusion fencing, and conduct other activities necessary to ensure that death or injuries of tortoises is minimized.

10. Refuse Disposal

All trash and food items generated by construction and maintenance activities shall be promptly contained and regularly removed from the project site to reduce the attractiveness of the area to common ravens and other desert predators. Portable toilets shall be provided on-site if appropriate.

11. Dogs

Dogs shall be restrained either by enclosure in a kennel or by chaining to a point within the tortoise-proof exclosure if one has been constructed for the activity.

12. Ravens

Structures which may function as common raven nesting or perching sites are not authorized except as specifically stated in the appropriate BLM document. The proponent shall provide a graphic description of all structures to be erected on the site. Some actions are required to mitigate actual nesting on authorized structures, such as requiring the proponent to secure necessary permits to remove nests and to remove such nests in a timely fashion. USFWS does not (or rarely) authorize nest removal if birds are present in the nest, but does authorize nest removal after birds have left.

13. Motorized Access

Where possible, motor vehicle access shall be limited to maintained roads and designated routes. Where temporary access off a maintained road or designated route is permitted, a Qualified Biologist shall travel with each work crew to ensure that all desert tortoises and their burrows are avoided and that impact to the habitat is minimized. All vehicle tracks that might encourage public use shall be obliterated after temporary use.

Where access from a maintained road or designated route to a project's site is part of the approved development plan, length and location of the route shall be designed to minimize impact to the habitat. The amount of disturbed area shall be subject to the mitigation fee, and the route shall be designated "Limited Use" and not open to the public.

a. **Speed Limits**: Vehicle speed within a project area, along right-of-way maintenance roads and on routes designated for limited use shall not exceed 20 miles per hour. Speed limits shall be clearly marked by the proponent, and workers shall be made aware of these limits.

b. **Tortoises Under Vehicles**: Vehicles parked in desert tortoise habitat shall be inspected immediately prior to being moved. If a tortoise is found beneath a vehicle, the Authorized Biologist shall be contacted to move the animal from harms-way, or the vehicle shall not be moved until the desert tortoise leaves of its own accord. The Authorized Biologist shall be responsible for taking appropriate measures to ensure that any desert tortoise moved in this manner is not exposed to temperature extremes which could be harmful to the animal.

14. Route Maintenance and Surface Restoration

The following mitigation measures shall be implemented during all route maintenance and surface restoration projects:

a. **Heavy Equipment**: Operators of heavy equipment (such as roadgraders) shall be accompanied by a biological monitor who is a Qualified Biologist when working in desert tortoise habitat during the desert tortoise's active period (March 15 to October 31). The biological monitor shall walk **in front** of the equipment during its operation and shall function as the FCR and have the responsibility and authority to halt all project activity should danger to a desert tortoise arise. Work shall proceed only after hazards to the desert tortoise are removed, the desert tortoise is no longer at risk, or the desert tortoise has been moved from harms way by an Authorized Biologist. This measure does not currently apply to County or Caltrans road work on BLM land.

During the desert tortoise's inactive period (November 1 to March 15, an on-site monitor is not required. The operator shall watch for desert tortoises while using the equipment and shall have the responsibility for preventing harm to desert tortoises by proceeding only after hazards to the desert tortoise are removed or the desert tortoise is no longer at risk.Operators of light equipment used for trail maintenance and project leaders for surface reclamation actions shall watch for desert tortoises during all project activities. They shall have the responsibility for preventing harm to desert tortoises by proceeding only after hazards to the desert tortoise are removed or the desert tortoise is no longer at risk.

b. **Injury**: Should any desert tortoise be injured or killed, all activities shall be halted, and the Authorized Biologist immediately contacted. The biologist shall have the responsibility for determining whether the animal should be transported to a veterinarian for care, which is paid for by the project proponent, if involved. If the animal recovers, USFWS is to be contacted to determine the final disposition of the animal; few desert tortoise are returned to the wild.

c. **Report**: The equipment operator, or Authorized Biologist shall keep a tally of all desert tortoises seen, moved, injured or killed during the project. Other required elements are 1) rating the effectiveness of required mitigation, 2) a breakdown of actual habitat disturbance, and 3) suggestions for improving mitigation.

d. **Water Ditches**: The equipment operator or Qualified Biologist shall inspect water ditches for desert tortoise burrows before moving or shoveling any soil. If a desert tortoise burrow is present, the water ditch shall be left undisturbed if possible. The equipment operator shall inspect water ditches for desert tortoise burrows.

e. **Burrows**: If a burrow is occupied by a desert tortoise and avoidance of the burrow is not possible during road maintenance or reclamation activities, the Authorized Biologist shall make the final determination. Only an Authorized Biologist may excavate the desert tortoise, following established protocols.

f. **Grading**: To avoid building up tall berms that may inhibit desert tortoise movement, the operator should minimize lowering of the road bed while grading. Berms higher than 12 inches or a slope greater than 30 degrees shall be pulled back into the road bed. Where it is not feasible to meet these requirements, berms will be mitigated through such means as artificial breaching at washes intersections or ditch-outs for drainage with adequate spacing.

g. **Speed Limits**: The equipment operator shall watch for desert tortoises on the road whenever driving, transporting or operating equipment. Driving speeds shall not exceed 20 miles per hour, and operating speeds should not exceed 5 miles per hour to allow for adequate visibility.

SPECIAL MITIGATION FOR SPECIFIC USES

15. Mineral Exploration and Development

In addition to mitigation measures described above for general mitigation, the following special mitigation measures shall apply to small mining operations and minor exploration and test drill holes in which the surface disturbance or area from which desert tortoises are to be removed is less than ten acres:

a. **Compliance**: A Qualified Biologist shall be on-site during the initial mining activity.
b. **Explosives**: If explosives are authorized, the BLM's field office biologist shall verbally consult with the appropriate USFWS office to determine what measures shall be required to reduce the potential to take desert tortoises. This measure may include:

   1) Seasonal restrictions upon the use of explosives;

   2) Temporary removal of desert tortoises from areas potentially at risk during detonation either directly from the explosion or by thrown materials. All handling and storage of desert tortoises for this purpose shall be conducted as described in Measure 3 by an Authorized Biologist.

   3) Covering of desert tortoise burrows to reduce impacts of flying materials.

16. Non-Competitive Recreational Events

The following measures shall apply to all vehicle-oriented, dual-sport, and other non-competitive trail events:

a. **Timing**: Events shall be held during the hibernation season for desert tortoises, generally considered to be between November 1 and March 1. Routes selected shall avoid impacting other special status plants and animal species. Any course flagging or markers shall be placed on the course not more than two weeks prior to the event and shall be removed within one week after conclusion of the event.
b. **Limits**: The event shall be restricted to designated routes and limited to 500 rider participants per event. Participants shall not exceed 30 miles per hour through Category I and II tortoise habitat. They shall be notified of this requirement at the beginning of the event and before the start of the event on any subsequent days. Racing shall be prohibited.
c. **Maps**: A map identifying the course shall be furnished to each entrant. The map shall clearly delineate maximum speed limits, authorized camp sites, and Conservation areas and shall include a statement cautioning that travel beyond the edge of the roads into undisturbed habitat is strictly prohibited.
d. **Parking**: Vehicles shall be parked at the side of the road or areas devoid of any perennial vegetation. Any entrants who abandon the event must exit the course on designated routes or public roads.
e. **Camping**: Overnight camping shall be limited to existing campgrounds or designated camp sites capable of accommodating the group. Selected camping areas shall be surveyed by a Qualified Biologist prior to the event to determine if desert tortoise burrows or other special status plant or animal species are present.
f. **Trash**: Trash and food items shall be carried out by the participants. The event proponent shall be responsible for assuring that trash and garbage are not left behind.
g. **Injury**: Injured tortoises found on the course shall be transported to an approved

veterinarian (list provided to event organizers) at the earliest possible time. The proponent shall be responsible for the cost resulting from treatment of desert tortoises whose injuries resulted from the event.

h. **Clearance**: The entire course shall be swept by an Authorized Biologist within an hour before the event. In addition, an Authorized Biologist shall travel at the front of the event to ensure that the route is cleared of all desert tortoises. Desert tortoises found shall be moved approximately 100 feet off the course.

17. Competitive Events

These measures apply to organized off-highway vehicle events in designated vehicle open areas.

a. Organized event promoters and sponsors shall designate an FCR responsible for overseeing compliance with the special desert tortoise stipulations.
b. Prior to commencing the event, organized event promoters and sponsors shall provide event participants and spectators with the BLM's printed materials describing: the occurrence of the desert tortoise in the area, the status of the desert tortoise, prohibitions against take and the penalties associated with take, and methods being employed as a part of the event to protect the desert tortoise and its habitat.
c. Organized event promoters and sponsors that fail to comply with any of the special recreation permit stipulations shall be prosecuted to the fullest extent possible.
d. Trash containers used for race event shall be raven-proof. Trash and food items shall be promptly contained and removed from the area within 24 hours of completion of the event.
e. Participants that violate any special desert tortoise stipulation shall be disqualified from the event. Support team members that fail to comply with the stipulations shall result in disqualification of the associated rider(s). Anyone who accumulates three violations shall be barred from participating in any organized off-highway vehicle event for one year from the date of the third violation.

18. Utility Pipelines and Underground Cables

For construction and maintenance of all pipelines, fiber-optic lines, and other utilities requiring trenching, the following measures shall apply:

a. **Width**: Construction rights-of-way shall be restricted to the narrowest possible width.
b. **Exceptions**: All project construction and maintenance shall be restricted to the authorized right-of-way. If unforeseen circumstances require expansion beyond the right-of-way, the potential expanded work areas shall be surveyed for desert tortoises.
c. **Access**: Vehicular travel shall be limited to the right-of-way. Access to the right-of-way shall be limited to public roads and designated routes.
d. **Trenches**: Open trenches shall be regularly inspected by the Authorized Biologist at a minimum of once per day, and any desert tortoises that are encountered shall be safely removed. For small projects, escape ramps are sometimes required. The length of the trench left open at any given time shall not exceed that distance which will remain open for one week or less in duration. A final inspection of the open trench segment shall be made by the Authorized Biologist immediately prior to backfilling. Arrangements shall be made prior to the onset of maintenance or construction to ensure that desert tortoises can be removed from the trench without violating any requirement of the Occupational Safety and Health Administration.

e. **Maintenance**: Observations of desert tortoises or their sign during maintenance shall be conveyed to the field supervisor and a biological monitor. Employees shall be notified that they are not authorized to handle or otherwise move tortoises encountered on the project site.

f. **Compliance**: Sufficient Authorized and Qualified Biologists shall be present during maintenance or construction activities to assist in the implementation of on-site mitigation measures for the desert tortoise and to monitor compliance. The appropriate number of biologists will depend upon the nature and extent of the work being conducted and shall be stated in the right-of-way grant for each particular action, after consultation with the specific resource area office authorizing the action.

g. **Final Assessment**: The authorizing agency shall ensure that maintenance or construction activities are confined to the authorized work areas by means of a post-project assessment. The assessment may be conducted by the Authorized Biologist. If maintenance or construction activities have extended beyond the flagged work areas, the BLM shall ensure that the project proponent restores these disturbed areas in an appropriate manner.

h. **Restoration**: The proponent shall be required to restore disturbed areas in a manner that would assist re-establishment of biological values within the disturbed rights-of-way. Methods of restoration shall include, but not be limited to; road closure, the reduction of erosion, respreading of the top two to six inches of soil, planting with appropriate native shrubs, and scattering any bladed vegetation and rocks, where appropriate, across the right-of-way.

19. Power Transmission

The following mitigation measures shall be implemented during all construction and maintenance of transmission lines:

a. **Surveys**: When access along the utility corridor already exists, pre-construction surveys for transmission lines shall provide 100 percent coverage for any areas to be disturbed and within a 100-foot buffer around the areas of disturbance. When access along the utility corridor does not already exist, pre-construction surveys for transmission lines shall follow standard protocol for linear projects.

b. **Access**: To the maximum extent possible, access for transmission line construction and maintenance shall occur from public roads and designated routes.

c. **Disturbed Areas**: To the maximum extent possible, transmission pylons and poles, equipment storage areas, and wire-pulling sites shall be sited in a manner that avoids desert tortoise burrows.

d. **Restoration**: Whenever possible, spur and access roads and other disturbed sites created during construction shall be recontoured and restored.

e. **Ravens:** All transmission lines shall be designed in a manner that would reduce the likelihood of nesting by common ravens. Each transmission line company shall remove any common raven nests that are found on its structures. Transmission line companies must obtain a permit from the USFWS's Division of Law Enforcement to take common ravens or their nests.

20. Fire Management

a. Federal land management agencies will assign an environmental specialist on all wildfires exceeding initial attack.

b. Before the beginning of each fire season, firefighters and support personnel will be provided with a briefing on tortoises and their habitat. This education program will focus on minimizing take of any listed species, particularly take due to vehicle use.

c. On-road travel speeds will be kept low to reduce take of desert tortoise.

d. Off-road vehicle travel will be restricted to the minimum necessary to suppress wildfires.

e. Individuals trained to recognize tortoises and their shelter sites will precede any vehicle traveling off-road.

f. Camps, staging areas, and helispots will be pre-surveyed for tortoises and burrows by the assigned environmental specialist. Camps will be established within previously disturbed areas whenever possible.

g. Some effects of suppression may require rehabilitation action (e.g., surface disturbance from dozers).

h. Some burned areas may require monitoring and follow-up treatment to promote return of native species and discourage exotic species.

PROJECT REPORTING

For each project on which the consultation is to be applied, the BLM will transmit a reporting form (Attachment I) to the appropriate USFWS field office at least 30 days prior to authorizing the activity. If there is no response after 30 days, the project may be approved.

Each Field Office will report to the California Desert District Office the actual acres disturbed, the number of tortoises moved, and the number of tortoises killed within 30 days of the completion of each project covered under this consultation. The California Desert District Office will report annually on these projects to the Ventura and Carlsbad field Offices of USFWS.

The BLM's California Desert District maintains a tabular and GIS record of all compensation acquisitions.

Attachment I

Reporting Form

REPORT ON PROPOSED ACTION TO BE COVERED BY THE PROGRAMMATIC CONSULTATION ON ACTIVITIES RESULTING IN SMALL DISTURBANCES OF DESERT TORTOISE HABITAT IN THE CALIFORNIA DESERT

Authorization may not be issued until USFWS has 30 days for review and comment. For actions in Inyo, Kern, Los Angeles, and transmontane San Bernardino Counties, send to USFWS, Field Office Supervisor, 2493 Portola Road, Suite B, Ventura, CA 93003. For actions in Riverside, Imperial, and cismontane San Bernardino Counties, send to USFWS, Carlsbad Field Office Supervisor, 2730 Loker Avenue West, Carlsbad, CA 92008. ** Send a copy to BLM California Desert District T&E Coordinator.

Name of Project: ______________________________ BLM Case File No.: ______________

Type of Activity: ____

BLM Contact: ______________________________ Date of Preparation: ______________

Location of Activity: Base Meridian ___ Township ___ Range ___ Section ___

General locality: ____
____

BLM Field Office: ________________________
or other jurisdiction: ______________________________

Tortoise Critical Habitat Unit: ______________________
Tortoise Recovery Unit: ____________________________
BLM Tortoise Habitat Category (I, II, III): ____________

Brief description of project (include site photographs, topographic map of location, and proposed construction dates):

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Stipulations to be applied (list specific stipulation numbers from biological opinion):

____

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Attachment II - Handling of Desert Tortoise

Only an "Authorized Biologist" (see Measure 1) shall handle a desert tortoise. No handling activities shall begin until an Authorized Biologist is approved. Authorization for handling shall be granted under the auspices of the Section 7 consultation. BLM Field Office Biologists are authorized to handle tortoises in accordance with these measures.

If a tortoise or clutch of eggs is found in the project area, to extant practical, activities shall be modified to avoid harm or injury to it. If activities cannot be modified, the tortoise or clutch shall be moved from harm's way the minimum distance possible within appropriate habitat ensure its safety from death, injury, or collection. The Authorized Biologist is allowed some discretion to ensure that survival of each relocated tortoise or clutch is likely.

In handling desert tortoises, the Authorized Biologist shall follow the techniques for handling in "Guidelines for Handling Desert Tortoise during Construction Projects (LaRue 1994). Desert tortoises moved shall be marked for future identification in the event that a dead tortoise is found later in the project area.. An identification number using the acrylic paint/epoxy covering technique shall be placed on the fourth left costal scute as described the Handling Protocol. A 35-mm sidle of the carapace, plastron, and the fourth costal scute shall be taken.

No notching of scutes or replacement of fluids with a syringe is authorized.

The Authorized Biologist shall maintain a record of desert tortoises handled. This information shall include the following:

1. The location (narrative and map) and dates of observations;
2. General condition and health of the tortoise, including injuries and state of healing and whether the animal voided its bladder;
3. location moved from and to;
4. Diagnostic markings (e.g., scute markings);
5. Slide photograph of each tortoise handled.

Encounters with listed species shall be reported to the FCR. The FCR shall maintain a record of all listed species encountered during project activities. Information recorded shall be the same as that for animals that were handled.

Upon locating dead, injured, or sick individuals of a listed species, the Federal land management agency must be notified immediately. The agency must make or verify initial notification to the Service's Division of Law Enforcement at (310) 297-0062 in Torrance, California, within three working days of its finding. The Service's Field Office within whose area of responsibility the specimen is recovered shall also be notified (Carlsbad: 619-431-9440; Ventura: 805-650-9845). The agency must make written or verify notification within five calendar days and include the date, time, and location of the carcass, a photograph, caused of death, if known, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure treatment and care, and in handling dead specimens to preserve biological material in the best possible state.

The Federal land management agency in that area shall endeavor to place the remains of intact listed species with educational or research institutions holding the appropriate State and Federal permits per their instructions. If such institutions are not available or the animal's remains are in poor condition, the information noted above shall be obtained and the carcass left in place. If the animal is a desert tortoise, the carcass shall be marked in a manner that would not be toxic to other wildlife to ensure that it would not be re-recorded in the future. Arrangements regarding proper disposition of potential museum specimens shall be made with the institution prior to implementation of the action. Animals injured by project activities should be transported to a qualified veterinarian. Should any treated animals survive, the appropriate Service field office should be contacted regarding the final disposition of the animals.

Appendix E
Desert Restoration

Many new ideas for restoring desert habitats are being developed. Their implementation should improve restoration, both qualitatively and temporally, on a general basis and for sensitive areas as well. A comprehensive and long-term effort is in progress through the efforts of the Desert Restoration Task Force (DRTF), a committee to the Desert Managers Group. This committee has developed a planning and methods publication on the subject. Over the years, the Desert Managers Group will also play an important support role regarding monitoring and research proposals, in the form of improving site planning, applications and priorities. An important point to make is that restoration is a developing science. Tried and tested site planning and application techniques will be used, but experimentation will also be encouraged to advance the science. There are too many considerations and variables to "cook-book" restoration by species and habitat, so the purpose of this appendix is to convey a degree of thought and common actions developed by the DRTF so that the reader gets an idea about what to expect and visualize when restoration is discussed. In the final analysis, it will be left to case by case field applications (i.e., by project) to evaluate the needs and specify actions, expense, and priorities for restoration.

The NECO Science Panel, which met on November 12, indicated that disturbance is not entirely a negative ecological condition. Wash, wind, tectonic, fire and other violent natural forces cause disturbance in addition to what humans create. Variables to consider in restoration may include the amount, location, nature, and effects of disturbance and other constraints. Disturbance is one of several natural ecological processes. Disturbances which pose serious problems that do not lend themselves to a "construction" solution and are not addressed here, include disease, unnatural change to fire regime, and exotic plants. The challenge to land managers in dealing with disturbance is to develop restoration protocols for human-caused disturbance that are need/goal defined, are cost effective, consider situation context and other constraints, and leave sites in conditions that approximate natural disturbance and restoration. To meet this mandate, decision makers must apply site planning and review a variety of technical applications.

Site planning and restoration considerations may include:

1. **Special Status Species**
    - listed, proposed for listing, sensitive
    - species-habitat relationships that apply.
2. **Plant Community**
    - common, rare
    - site quality
3. **Management Goals**
    - general management goals
    - special management goals (e.g., DWMA, WHMA, species and sensitive habitats). This consideration is critical and can make the difference between a minimally necessary and special needs restoration and cost.
4. **Ecological Processes**
    - determine the preexisting condition, distribution of species and habitats
    - most important to restore and that humans can effect
    - commonly considered are soil, hydrologic, wind functions, movement of animals, sources and movement of seed.
5. **Conservation Principles**
    - patch size (fragmentation)
    - cover stories
    - corridors
    - habitat conversion to exotic species

6. **Site Context**
    - site in area of habitat
    - site in the range(s) of species
    - site quality
    - cumulative situation, if any, of this site, with others of a permanent/temporary disturbance nature
7. **Site Analysis/Pre-existing Site Condition** - constraints and objectives
    - Topography, Slope, Aspect
    - Landforms (e.g.,washes, desert pavement, sand systems)
    - Surface and Subsurface Soils
    - Vegetation
    - Subsurface organic matter
    - Surface texture/micro-habitat: organic debris, soil, sand, rock texture
8. **Constraints**
    - Can approximate original topography be achieved?
    - Is compaction a problem?
    - Historic use patterns
    - Are materials on hand to recreate original surface texture?
    - Are there uses to prevent or that could impair restoration efforts?
    - Time
    - Cost
9. **Common applications** (not for all situations)
    - Grading (topography, landform, microtopography, surface texture)
    - Replacing topsoil
    - Increasing soil moisture through mulching surface or subsurface (non contaminated with chemicals or weed seeds), imprinting, pitting
    - Treating compacted soils
    - Capturing and holding seeds through imprinting and pitting
    - Seeding (seed treatment) with locally gathered/commercially available seed
    - Individual plantings/Irrigation (costly, uncommon)
    - Erosion control
    - Plant salvaging/replanting
    - Exotic plants control
    - Maintenance measures
10. **Monitoring Program**
    - Contingency measures
11. **Success Criteria**
    - Tied to bonding and bank release

APPENDIX F
Public Education Program from the California Statewide Desert Tortoise Management Policy

[The following is from Chapter VIII, "Public Education Program," of the *California Statewide Desert Tortoise Management Strategy*, which was signed by the BLM California State Director and Director of the California Department of Fish and Game in October 1992. This abbreviated version contains the entire introduction and all planned actions. Details, such as lead responsibility, target year, and estimated cost for each action have been deleted. Some of the actions have been completed, some have not, and some are ongoing.]

"Bureau policy as stated in "Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan" (Spang *et al.* 1988) is that each state shall embark on an aggressive public education program concerning tortoise populations and habitats to promote compliance with State and Federal laws and to reduce unnecessary mortality. As the first step in this campaign, the Rangewide Plan requires development of a desert tortoise public education plan in each state.

The California Department of Fish and Game and U.S. Fish and Wildlife Service play key roles in managing and protecting desert tortoise populations and habitat. The assistance of these agencies will be required to implement an effective public education program. The participation of other State and Federal agencies with jurisdiction over tortoise habitat will be important, as well.

In addition to governmental agencies, several private organizations share concern for the desert tortoise and have valuable expertise. The Desert Tortoise Council, Desert Tortoise Preserve Committee, and California Turtle and Tortoise Clubs have been very active in assisting agencies with public education by developing brochures and slide presentations, leading public tours, developing signs and kiosks, and holding public forums and conferences.

Close cooperation between all of these agencies and organizations will enhance any efforts to benefit desert tortoises through increased public education. The following plan is built upon the proposition that the agencies can positively impact public knowledge of and behaviors toward the desert tortoise.

The specific objectives of the public education plan are to:

- increase public awareness of the need to protect desert tortoises and their habitat on California's Public Lands;
- increase public knowledge of State and Federal laws and regulations protecting desert tortoises;
- educate the public regarding their role in protecting tortoises and tortoise habitat;
- modify social behavior in a manner that benefits desert tortoise populations and their habitat; and
- increase public knowledge of and support for agency actions to benefit desert tortoises and their habitat."

STRATEGY A: Enhance public knowledge of desert tortoises (e.g., their evolution, life cycle, and habitat needs), stressing the need for their protection.

ACTION 1: Support efforts of museums, zoos, and other public institutions to develop permanent desert tortoise exhibits.
Target audience: General public, including schoolchildren.

ACTION 1-a: Continue support of the San Bernardino County Museum's effort to develop a desert tortoise exhibit.

ACTION 1-b: Offer support to the California Living Desert Museum in Bakersfield by providing assistance and brochures for their desert tortoise exhibit.

ACTION 1-c: Offer support to the Living Desert Reserve in Palm Desert in operating their outdoor interpretive program involving a live-tortoise exhibit.

ACTION 1-d: Offer support to the Mojave Narrows Regional Park in Victorville in developing an outdoor interpretive program involving a live-tortoise exhibit.

ACTION 2: Develop a portable desert tortoise exhibit primarily for use in museums throughout Southern California.

ACTION 2-a: Design and produce the portable exhibit.

ACTION 2-b: Seek exhibit space at local museums.

ACTION 2-c: Circulate exhibit to area museums and provide necessary maintenance.

ACTION 3: Develop tortoise displays for Federal and State agency offices.

ACTION 3-a: Construct a tortoise display for the Bureau's California Desert Information Center in Barstow.

ACTION 3-b: Explore other opportunities and encourage other agencies (e.g., State Parks, Regional Parks, National Monuments) to develop desert tortoise exhibits and displays within their visitor centers.

ACTION 4: Develop educational packets for use in classrooms.

ACTION 4-a: Complete desert tortoise segment of Bureau's California natural resources videotape series and distribute to schools statewide.

ACTION 4-b: Develop and print coloring books for elementary students.

ACTION 4-c: Produce educational posters for classrooms.

ACTION 4-d: Design and produce desert tortoise stickers for children.

ACTION 4-e: Develop a teacher's handbook for their use in teaching units about the desert tortoise.

ACTION 4-f: Develop a desert tortoise game for elementary students and make it available for incorporation into Project Wild materials.

ACTION 5: Work with university/media/corporate sponsor(s) to develop a quality video on desert tortoises for release to network, local, and cable television stations.

ACTION 6: Encourage media feature coverage of desert tortoises and their environment.

STRATEGY B: Educate the public regarding their role in protecting wild desert tortoise populations and their habitat.

ACTION 7: Develop an informational reference book for agency information desks, rangers, and wardens.

ACTION 8: Produce informational brochures and leaflets for distribution to the general public and targeted audiences.

ACTION 8-a: Develop a general informational brochure describing what the public can do to assist the desert tortoise. The brochure will target a general public for distribution at county fairs, desert information outposts, agency offices, rest areas/truck stops, and to captive tortoise permittees.

ACTION 8-b: Develop a general informational brochure aimed toward schoolchildren for distribution at school presentations or as part of the teaching unit in Strategy A.

ACTION 8-c: Develop a series of brochures targeted toward specific users of the Desert (e.g., OHV users, sheepherders, hunters and shooters, and campers); illustrate their potential role in helping the tortoise.

ACTION 9: Design and erect a new sign at the Desert Tortoise Natural Area; include in the sign appropriate behavior messages and offer an "800" telephone number for information on tortoise adoption.

ACTION 10: Design, produce, and distribute desert tortoise posters with protection message.

ACTION 11: Work with CALTRANS to design and install separate, free-standing, interpretive kiosks with desert tortoise protection information at highway rest areas.

ACTION 12: Develop and produce print media, radio, and television public service announcements for distribution throughout Southern California.

ACTION 13: Review tortoise information in the Bureau's Desert Access Guide series and other agency publications/maps for possible revision or inclusion.

ACTION 14: Develop and produce portable displays for use at county fairs, shows, agency offices, shopping malls, etc.

ACTION 15: Develop a brochure/leaflet for distribution to tortoise permittees explaining the problems with unauthorized release of captive tortoises into wild populations.

ACTION 16: Encourage involvement of individuals, interest groups, students, Scouts, etc., in volunteer projects which benefit desert tortoises.

STRATEGY C: Increase public knowledge of State and Federal regulations protecting desert tortoises and modify public behavior to benefit tortoises.

ACTION 17: Develop a brochure explaining Federal listing of the desert tortoise and its effects.

ACTION 18: Include regulatory information in other publications/products outlined above.

ACTION 19: Develop and publish a flyer for distribution by rangers and wardens stressing appropriate behavior while in desert tortoise habitat.

ACTION 20: Publicize law enforcement actions and court-imposed penalties for offenders.

STRATEGY D: Increase public knowledge of and support for agency actions benefitting desert tortoises.

ACTION 21: Provide accurate, timely, and detailed information to media in advance of actions through news releases, fact sheets, media tours, press conferences, media packets, etc.

ACTION 22: To develop broad-based support for management actions, maintain close cooperation among agencies and private organizations benefitting tortoises to keep them apprised of and involved in decision-making.

ACTION 23: Update existing slide programs and possibly convert them to videotape for use in presentations to interest groups, California Desert Information Center visitors, local/county/state/federal officials, and at county fairs.

ACTION 24: Develop a series of 5-10 minute slide programs or videos relating agency efforts to protect tortoises populations and habitat. Topics might include the following:

Disease control,
Raven predation and control,
Habitat acquisition,
Vehicle use in sensitive tortoise habitat,
Tortoise population trends and study plot data

The videos might target agency employees, interest groups, or the general public.

ACTION 25: Make presentations at professional symposia.

APPENDIX G
Limitation on Cumulative New Surface Disturbance

It is proposed that cumulative new surface disturbance on lands administered by Federal and State agencies within Desert Wildlife Management Areas (DWMAs) shall be limited to 1 percent (or, alternatively, 3 percent). The amount that may be disturbed will be apportioned among the various participating agency jurisdictions.

Rationale - The limit of 1 percent on cumulative surface disturbance is intended to show a high level of commitment to conservation of natural habitats. It is expected to accommodate the needs of those activities that must occur in a DWMA. Among these are communication sites, maintenance of existing and construction of new utilities in designated utility corridors, and mining. It is anticipated that retaining 99 percent of what is presently in natural condition will be sufficient for maintaining viable populations of all species that are dependent upon the DWMA; conserving lesser amounts might be arguable. The commitment to limiting cumulative disturbance is an alternative to the prohibition on specific classes of activities based merely on our ability to prohibit them rather than on their expected level of occurrence and size, their need, their public value, etc.

Specifics - Surface disturbing activities are those that result in elimination of perennial plant cover over an area. Elimination may result from blading or otherwise destroying plant roots and severely disturbing soil structure, or it may be less severe in the form of crushing of above-ground plant parts. The localized effects of new corrals or livestock watering sites will be considered surface disturbing, but general grazing will not be. Burned areas will not be included under the cumulative limitation.

Surface disturbing activities will be recorded on 7.5-min. topographic maps and entered into a GIS data base as they are permitted. Unauthorized disturbances will also be entered as they are discovered. Disturbances on private lands may also be recorded but will not be limited to 1 percent cumulative disturbance. It would be useful to have existing surface disturbance digitized from baseline aerial photos; new aerial photos could be periodically (e.g., every 5 years) analyzed to determine the full extent of unauthorized disturbance.

Lands acquired by an agency will be considered added to the base in their condition at the time of acquisition. That is, disturbance present on the parcel at the time of acquisition will not be added to the cumulative new disturbance.

If an interstate highway or state highway is widened and creates new surface disturbance in a DWMA, the new disturbance will not be covered by the cumulative limit if highway fencing is added. The fencing will result in increased animal populations along the highway due to decreased wildlife mortality on the road. In addition, there may be a decrease in raven populations as roadkills supporting ravens are reduced. [Raven populations are at elevated levels due to human-related factors, and they are known to be preying heavily on some species (e.g., desert tortoise).]

As disturbed lands are restored, they will be subtracted from the cumulative total of disturbed lands. No criteria are set for what would be considered as adequate restoration for a particular site. The adequacy of restoration will be determined on a case by case basis jointly by the BLM and USFWS and does not require full reestablishment of habitat to its pre-disturbance state. However, little if any focus on adequacy evaluation will occur until substantial progress is made. A point at which serious evaluation might occur is described as follows:

> Perennial plants are present in densities and sizes so that impacts are substantially unnoticeable in the area as a whole and so that the area provides food and shelter for key wildlife species. More

> specifically, each species in a suite of the most dominant perennial plants prior to disturbance should be reestablished to at least 40 percent of its original density (i.e., number of plants/hectare) and at least 30 percent of its original total cover. The dominant perennial plants are any combination of perennial plants, which formerly accounted cumulatively for at least 80 percent of relative density[1]. There will be no less than two dominant perennial species. The presence of exotic species may become a factor.

The criteria are aimed at restoring both the productivity and the visual aspect of the vegetative community. The specific levels specified in the criteria are those judged to be sufficient to render the impact unnoticeable and the area productive for wildlife in terms of food and shelter. At these levels, soil condition is generally suitable for growing plants, and annual plant cover is usually present. The use of only perennial plant cover in the criteria allows calculation of the restoration requirement in any year and in any season. The use of specific numbers allows the restoration requirements to be known prior to the disturbance, and the restoration success to be judged at any time. It should be noted that some important plants, such as Joshua trees, which are important as an overstory plant but are not dominant, would not be required. Such plants could be required as additional mitigation on a project-by-project basis, but they would not be used to judge restoration for the purposes of reducing the cumulative disturbance. Annual plants are difficult to use in evaluating restoration progress because 1) the number of species is very high, 2) identification is difficult, and 3) the presence of a given species is highly variable from year to year based on factors (e.g., rainfall) unrelated to habitat restoration. The criteria does not preclude the possibility that annual weeds may be present or even prevalent

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[1] For example, if perennial plants A, B, and C have relative densities of 70, 13, and 12 percent, respectively, restoration could take place with species A and either (or both) of species B or C.

Appendix H
Species & Habitats Modeling & Development of Management Areas

This appendix describes the development of various biological resources and proposed management maps and areas:

- Natural Communities (plant or vegetation communities)
- Plant and Animal species occurrence
- Plant and Animal richness
- Ecological values ("Hot Spots")
- Desert Wildlife Management Areas (DWMAs) for the desert tortoise
- Bighorn Sheep Wildlife Habitat Management Areas (WHMAs)
- Multi-species Wildlife Habitat Management Areas (WHMAs)

Items I through IV below indicate that, to a considerable degree, the characterization of biological resources and values in the Planning Area is based in modeling. Models are not as precise as exact data, but for the most part such data do not exist and would be extremely costly and time consuming to obtain. However, given the nature of issues and current and foreseeable uses in the Planning Area, it is felt that the sophisticated models described in this appendix serve as adequate basis for management proposals and impacts analyses.

I. Natural Communities

The beginning point was the vegetation map produced for the California GAP Analysis project by University of California at Santa Barbara. For NECO, the Sonoran and Southwest Eco-region maps from GAP were combined. These coverages were created from photo-interpretation of 1990 satellite imagery and supplemented by large-scale maps, photographs, and some field visits. The minimum mapping unit was 100ha (250 acres) for upland sites and 40ha (100 acres) for wetland sites; the mapping scale was 1:100,000.

Since much of the planning analyses and plan development were going to be dependent upon the habitat map, it was decided to put considerable time and effort into improving the accuracy and resolution of the GAP map, particularly for the sensitive habitat types. This was accomplished through several means: NPS surveys of small areas, additional analyses of satellite imagery, use of orth.-photo quads, consultation with knowledgeable ecologists, and an extensive accuracy assessment survey.

First, the GAP map was simplified by collapsing some of the Holland dominant community types into categories we considered useful for our purposes (12 total). Then, known Alkali Playas and Sand Dune areas were flown by helicopter and a global positioning system (GPS) unit was used to define their outlines. This information was incorporated into the simplified GAP map. Other features, such as Hayfield Lake and some Desert Dry Wash Woodlands, were digitized from additional satellite imagery, orthophotos, and hand drawings on quad sheets from the helicopter surveys. The minimum mapping unit for the sensitive habitats was 16ha.

A botanist from the Palm Springs FO was able to do more refined supervised classifications of satellite imagery to identify areas of Desert Dry Wash Woodland, a feature under-represented in the original GAP maps. Due to reflectance differences in the vegetation, this technique could only be applied to the southern half of the Plan area (south of Highway 62). This raster (30m cell) data set was then combined with the vector coverage after using clustering and smoothing techniques in ARC/INFO GRID.

To quantify the accuracy of the original GAP map, an extensive field verification effort was undertaken by teams of staff and volunteers in the winter of 1996/97. The seven most extensive vegetation types were chosen for sampling (Non-Native Grassland, Sonoran, Mojave, and Chenopod Scrub, Desert Dry Wash Woodland, Sand Dunes, and Playas). A statistician from CDFG provided the guidance to determine the number of points needed in each vegetation type to achieve our goals, following a procedure outlined in Congalton (1991). These numbers depended in part on the level of confidence we had in our existing map (more points were assigned in Chenopod Scrub and Non-Native Grassland) and also in part on the confidence level we wanted for our final result (higher for Desert Dry Wash Woodlands, Sand Dunes, and Playas). Total area of each type was also taken into account. The total number of points needed was determined to be 855. The appropriate number of points were randomly assigned to polygons of the seven selected vegetation types throughout the Plan area using ARC/INFO.

A list of point ID's and their coordinates was generated and used by the surveyors to locate the points in the field with GPS units. Points that were too remote to visit on foot were flown by helicopter. Each site visited on foot was surveyed with a triangular transect 0.5mi on each side. Several types of habitat data were recorded on the transects, including a list of perennial plant species. These lists were used to define the plant community at each site (surveyors did not know the predicted community type for the site).

As a final step, the results of the Accuracy Assessment (AA) were used to further refine the Natural Communities map. As expected, the polygons originally coded Non-Native Grassland were actually mostly Sonoran Creosote Scrub, and much of the Chenopod Scrub areas were reclassified as Mojave Creosote Scrub. Another interesting result was a westward shift in the boundary between Mojave and Sonoran Creosote Scrub. These and other adjustments to the map used the defined community type at the AA points, along with orthophotos (where available) and the expertise of botanists. While it was not possible to quantify the accuracy of the final map, we feel it was a significant improvement over the original version.

Further details on any of these steps are available upon request.

II. Plants and Animal Species List and Occurrence

Predicted occurrence was mapped for each species of concern (except some plants about which too little is known) utilizing a combination of CDFG range maps, points of known occurrence, specific species models, and professional judgement of participating biologists. These maps have not been assessed for accuracy.

The list of Special Status Species includes species that are known to occur in the planning area and are either listed, had special status designations by DFG, BLM, or the FWS, or were considered to be representative of the area. Species were removed from an initial list if there were occurrences in the area, but no recent siting, or was thought to be a migrant, or mistaken for another subspecies (e.g., Bell's vireo). The list was developed through a series of meetings of the NECO wildlife team, noted in Chapter 7. At any point in the planning process list revisions were made by the wildlife team based on newly acquired information.

III. Plant and animal richness

Plant and animal richness maps were derived from site visits to approximately 600 of the 850 AA points noted above (Natural Communities mapping). Predictions of which species might occur at any point was made using the Wildlife Habitat Relationship Program (WHR) developed for California. Numbers were interpolated within each major habitat type across the planning area. The maximum number of species was then determined on a quarter quad (1/4 of a 7.5' topographic sheet) basis. The number of species ranged from 22 to 140 with a mean of 99.

IV. Ecological values ("Hot Spots")

The input layers to this model were considered to represent features in the ecosystem that contribute to its ecological functioning either in terms of representativeness, rarity, umbrella species, or impacts. Thirteen layers were created for this exercise. There were two layers on species richness (one for vertebrates and one for plants), four layers for sensitive species (known locations and predicted distributions of plants and vertebrates), one layer each for habitat heterogeneity, bighorn sheep, desert tortoise density, special habitats, water sources and insect "hotspots", and a composite layer of different types of landscape fragmentation.

The unit of analysis was the Quarter Quad (QQ) - one quarter of a USGS 7.5min quad sheet. There are 633 QQs in the Plan area, each containing a little less than 10,000 acres. The decision to use the Quarter Quad as the analysis unit was a balance between manageability (processing time for complex analyses), the scale of source data, and the desired level of detail.

The ecological "hotspots" model was created by assigning values to cells of the input layers and combining them in different ways. Each input layer was classified into approximately equal numbers of "high", "medium", and "low" QQs (break points were usually ½ the standard deviation on each side of the mean). QQs containing values below a certain threshold were classified as "none". The results of the 14 analyses described above were grids of QQ cells, each ranked as either high, medium, or low. The characterization of high, medium, or low was determined by the data within the coverage. Scores for each QQ were determined by assigning 3 points to highs, 2 points to mediums, and 1 point to lows and adding the number of points in each QQ. Fragmentation values were assigned inversely (high fragmentation received 0 points, medium 1, low 2, and none 3), the assumption being that fragmentation takes away from the value of an area. The analysis was run three times with different weights applied to selected coverages depending upon what conservation emphasis was being analyzed. The first analysis applied **equal** weight to all the coverages. The second was weighted toward species **richness** - the two coverages on vertebrate and plant richness were weighted double relative to the rest (highs had a value of 6, mediums a value of 4 and lows a value of 2). The third analysis applied a higher weight to species **rarity**. First, the species distribution map of sensitive animal species was weighted according to the following criteria:

Widely distributed/locally uncommon species = 1
Widely rare species = 2
Species endemic to plan area = 3

A second layer was developed with springs and seeps receiving a weight of 1.5 and all other waters a weight of 1. These two new layers, as well as the sensitive habitats layer, were then weighted double and added to the original coverages.

The general pattern for areas of high biological diversity were very similar in all three analyses, with 94-98% correspondence between any two. This result was not unanticipated and confirmed similar results by Dueler and Noss (1990). The results of the equal weight analysis are shown in Map H-1.

V. Designation of Desert Tortoise Desert Wildlife Management Areas (DWMAs):

The boundaries of the large and small DWMAs generally or specifically follow those for critical habitat, but are adjusted on two bases:

1. to follow roads as much as possible for greater manageability, and
2. to exclude areas of low natural occurrence and high use values

Small DWMAs exclude more uses than large DWMAs. Excluded uses are grazing, mining, recreation, private-public checkerboard lands, and areas with higher densities of roads.

DWMAs also overlay portions of CMAGR and BLM wilderness areas. All of JTNP is a DWMA.

VI. Designation of Bighorn Sheep WHMAs:

The Bighorn Sheep Wildlife Habitat Management Areas (WHMAs) include all areas designated as Bighorn Sheep habitat. These habitat areas include transient and permanent habitat, movement corridors, relocation areas, and currently unoccupied habitat. These areas were mapped during a NECO workshop of several Bighorn Sheep biologists in June of 1997.

Unlike the Multi-Species WHMAs, the Bighorn Sheep WHMAs overlap all other management zones, including Tortoise DWMAs and BLM Wilderness areas.

VII. Approach for Designating Multiple-Species Wildlife Habitat Management Areas (WHMAs):

After reviewing the considerable body of existing literature on reserve design (see Scott and Sullivan, 1999, for a review) the wildlife team chose to adapt a method outlined in Bedward et al. 1992. This approach takes into account unsuitable areas, land protection "costs", species/ feature protection targets, and existing protected areas. Each step depends on the previous, so ordering is very important.

Two alternative protection goals were identified: one providing "low risk" to species/habitats, with generally 80% or more of species habitats in the conservation zone, and one providing "high risk" to species/habitats, with a target of at least 50% in the conservation zone. "Risk" is of course difficult to define, and "low" and "high" are used only for comparative purposes. Not all protection targets are exactly 50% or 80% (see Table H-1 and Appendix N tables).

The "conservation zone" is essentially the aggregate of the following management areas: existing restricted areas (JTNP, CMAGR, and BLM wilderness areas), proposed DWMAs, and WHMAs. Multi-species WHMAs address all the special status species as well as the general diversity of species and habitats.

The 80% conservation zone coverage is the basis for the Preferred/Large DWMA and the Small DWMA A Alternatives and the 50% coverage for the Small DWMA B Alternative. Unlike the Bighorn Sheep WHMAs, the system of Multi-species WHMAs is only complimentary to the other elements of the conservation zone. With this in mind, the 80%/50% species/habitats coverages described above refer to the entire conservation zone, not just the Multi-species WHMAs.

The steps used to create the Multi-Species WHMAs were as follows:

Step 1) Identify existing protected areas. In all cases we started with:
- BLM Wilderness
- CMAGR
- NPS
- Unique Plant Assemblages (UPAs)
- Proposed tortoise DWMAs
- Existing biological ACECs

Step 2) Perform GIS overlay analyses to identify percent coverage in the protected areas listed in Step 1 ("GAP" analysis) for species, habitats, and features, then compare to target protection levels (see Table 1), then design WHMAs to correct for "under-representedness".

First, we selected a set of features to be "nuclei" for WHMAs, then added others according to an assigned priority until the target representation levels were attained (see below). Priorities were chosen based upon goals agreed to at previous NECO Wildlife Team meetings and from the March 1998 workshop (listed in bold). Several important ecological features were identified during the March 1998 workshop and were also assigned target protection levels.

Where several units of the same priority level were available, the decision to add was based on (in order): most distant from the areas listed in Step 1 (this was to establish the "nuclei"), consider not only absolute distance but latitudinal and longitudinal variation (**representation, diversity**), adjacency to the above "nuclei" (**contiguity**), within existing large fragments (Map H-4)(reduce fragmentation), connectivity to other protected areas (movement corridors, buffers for changing conditions) and consider disturbance: see surface disturbance models, and avoid areas with "high" current or predicted disturbance consider exotics **(focus protection where the fewest have been identified so far)**

A. "50%" Alternative: Units of the following features were added until their target is reached (if feasible) - generally 51% of a species or habitat distribution (see Table 1). Units are ¼ of 7.5min USGS quads [QQs] or habitat polygons. Several of these, such as ecological "hotspots", are a result of GIS modeling and will be described in a separate Appendix. The features added and their order of addition were:

1. *highest ecological "hotspot" QQs (Map H-1)(of 6 classes)
2. *highest plant species richness QQs (Map H-2, H-3)(of 3 classes)
3. *highest habitat heterogeneity QQs (of 3 classes)
4. next highest ecological "hotspot" Qqs
5. highest animal species richness QQs (of 3 classes)
6. sensitive plant communities (in order of under-representedness)
7. other plant communities (if any are under-represented)
8. natural water sources
9. next highest ecological "hotspot" Qqs
10. highest combined sensitive animal ranges QQs (3 classes)
11. highest combined sensitive plant ranges QQs (3 classes)
12. insect hotspots
13. next highest plant species richness Qqs (Map H-X)
14. next highest habitat heterogeneity Qqs
15. under-represented plant and animal species, in order of their distance below target protection levels.

*these first three will be the "nuclei" because they best represent overall biological and physical diversity, and plant richness is our best indicator of vegetation diversity

B. "80%" Alternative: Units were added until their target is reached (if feasible)- generally 80% of a species or habitat distribution (see Table H-1). The features added, their order of addition, and the decision rules were the same as for A) above.

Step 3) Look at the product so far and double check for units in unsuitable areas or refine to achieve reserve design goals of contiguity, connectedness, etc.

Step 4) Refine boundaries to be manageable (roughly), then re-run GAP analyses.

Step 5) Check to see where targets have not been met, and add to WHMA system where necessary or feasible (for example, many species have a considerable portion of their distribution on private lands). Also check for efficiency - are some features *over*-represented? Repeat steps 4) and 5) as necessary.

Step 6) Look at the features represented in each area and consider management options. Should some be ACECs (stronger management options)? Could some just be designated "closed" to driving without calling them WHMAs (i.e. playas)? Could some be managed through Plan-wide habitat actions or "point" management?

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Table H-1. Target Protection Levels

		Ecological Hotspots			Habitat Type								Insect Hotspots	Species																			
		Class 6	Class 5	Class 4	Dunes	Playas	Chenopod Scrub	Microphyll woodland	Pinyon-Juniper	Sonoran Scrub	Mojave Scrub	Springs		Pallid bat	Western mastiff bat	California leaf-nosed bat	Couch's spadefoot toad	Chuckwalla	Mohave fringe toad lizard	Desert rosy boa	Pocketed free-tailed bat	Townsend's big-eared bat	Colorado valley woodrat	Mountain lion	Prairie falcon	Elf owl	Gila woodpecker	Vermilion fly catcher	Bendire's trasher	Crissal trasher	LeConte's trasher	Yellow warbler	Cave myotis
% in "conservation zone"	Preferred/Large DWMA Alternative & Small DWMA A Alternative	100	95	95	90	80	80	80	100	75	75	100	80	90	100	90	90	80	80	80	80	80	80	80	60	100	100	80	80	80	80	80	100
	Small DW'AA B Alternative	75	75	75	51	51	51	51	75	51	51	80	51	75	100	75	51	51	51	51	51	51	51	51	51	75	75	51	51	51	51	51	100

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Table H-1 Target Protection Levels

		Species																												
		Fringed myotis	Angel trumpets	Borrego milk vetch	Saguaro	Harwood's milkvetch	Red grama grass	Crucifixion thorn	Fairy duster	Los animas snakebush	Spiny abrojo	Wiggin's croton	California ditaxis	Glandular ditaxis	Howe's hedgehod cactus	Foxtail cactus	Crown of thorns	Spearleaf	Robison's monardella	Munz's cholla	Sand food	Arizona pholistoma	Lobed ground-cherry	Desert unicorn plant	Orocopia sage	Cove's cassia	Mesquite neststraw	Jackass clover	Mecca aster	Ribbed cryptantha	Wiggin's cholla	Whitemargined beardtongue
% in "conservation zone"	Preferred/Large DWMA Alternative & Small DWMA A Alternative	100	75	75	75	75	75	75	75	75	75	75	75	75	80	80	75	75	80	80	80	75	75	75	80	75	75	75	30	75	75	80
	Small DWMA B Alternative	100	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51

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Appendix I
Science Panel Report

During the week of November 10 through November 12, 1998, a panel reviewed various aspects of the "science" which was being developed as the basis for plan analyses and decisions. The panel members are listed in the report below which was written by the panel in conclusion to its review. Specifically, the panel was asked to respond to a set of questions (in the report) about how well it felt the NECO plan was developing from a science point of view. The full text of the report is included here. The information provided has been used and referred to periodically by the planning team as a quality/process check and may also help the reader to understand some of the basis for the plan.

Report to the Northern and Eastern Colorado Desert Management
Richard Crowe, chair, BLM

Science Panel Review Committee
(Chair) Michael F. Allen, Center for Conservation Biology
James Reichman, National Center for Ecological Analysis and Synthesis
Oliver Ryder, Center for the Reproduction of Endangered Species
John Rotenberry, UCR-Natural Reserve System
Edith Allen, State of California Cooperative Extension

Acknowledgements
Fred Edwards, Center for Conservation Biology

Goal
To evaluate the Conservation Science that will be used to underpin the NECO plan.

Meeting times
Tuesday 10 November 1998 to Thursday 12 November 1998

NECO public scoping issues
1. Desert tortoise recovery
2. Management of other species
3. Designation of routes of travel -open, closed, limited
4. Land tenure adjustment
5. access to resources and red tape in getting use authorizations
6. Wild Burros along the Colorado river

Questions asked of the Panel to respond to
A. How well have we done and are there serious gaps in gathering and analyzing data: quality, completeness, substance, detail, accuracy, methods, and intended uses given the nature and scope of the decision that we need to make?
B. How well have se done in providing an ecosystem basis to planning - i.e., the incorporation of information about species, habitats, and ecological processes?
C. What conservation principles are suggested given the nature of values, issues, and the management situation and the need for alternative plans (or management solutions)?
D. Can the panel offer monitoring and research design and priorities insight, including siting research natural areas given the nature of the planning situation and the certainty of limited future funding?

Report of the panel

1. How well have we done to date in gathering and analyzing data?

The data on vertebrate species have been gathered is very good. Inevitably, some species and locations will be missed, but it is unlikely that more species distribution data will alter any important conclusions. The data are organized and summarized using GIS into well-presented GAP models for richness and important species. The key now is not to spend more time on distributions, but to concentrate on Ecosystem Processes (see below). Generally, we see no need to generate major new data layers, with two exceptions: the distribution of exotic species and the addition of a soils map. These relate to key processes, (see 3 below).

2. Can you recommend further short-term analyses or studies?

We define short-term data sets as those that can be generated in weeks to months. Most data gathering exercises will not result in more useful information at this time. There are many studies on behavior that can be extrapolated from other sites such that few short-term experiments will be particularly useful.

We do recommend that efforts be undertaken to combine data layers to better localize activities of concern. Examples can include:

- Development of point maps of tortoise locations
- Development of point maps for bighorn sheep sightings
- Overlay these with postulated habitat distributions.

From these, an understanding can develop of the real migration activity, and assess migration processes (e.g., dispersed versus corridor migration). The plan should include corridors for movement or if the animals are likely to percolate through the environment. The patterns of land protection will vary greatly depending on these patterns.

Secondly, we explicitly recommend more interagency communication for the plan development. This particularly includes:

- with the West Mojave, NEMO, Arizona Fish and Wildlife (for the tortoise) and Cal Fish and Game (for the sheep).
- with the various government entities in the region. This will help to overlay patterns of development with the distribution of organism protection.

A third analysis that should be undertaken is to evaluate the map scales especially for critical or listed species. In particular, different organisms require different scaling units. The feeding habitat of a species may have a very tight edge depending on topography or vegetation. However, its migration may be diffuse (with no well-defined edge) or may be along a specific corridor (which may have a well-defined edge). Understanding these patterns may be critical to placing different use patterns (see example - below). These will also help evaluate critical processes affecting species. For example, knowing the edges will allow one to determine what perturbations subdivide populations. A dirt road may not affect a hawk but will a tortoise if it is sharply graded.

Once those edges are determined, size frequency analyses using different polygon sizes of the distributions of key species can be determined. These will provide insights into how human activities are likely to affect individual populations.

An example is to assess fragmenting activities, such as roads, highways, canals etc. Do these intersect habitat polygons and how? Size frequency estimates of current populations will provide insights into the habitat quality and persistence. The size frequency of polygons might also be used to develop a minimum population size analysis and a spatial prediction of sizes necessary to maintain those sizes. An example is two roads. One will cross through the middle of the habitat of a critical species. The second only goes along the edge. The first road divides the population into two metapopulations each with a lower survival probability. The second road may not have any effect.

Upon completion of these activities, roads that are redundant or crossing critical ranges should be eliminated or not built. Roads edging those same locations may be acceptable.

3 How well have we done in providing an ecosystem-based approach to planning?

Managers and ecologists often define ecosystem differently. In managerial approaches, an ecosystem approach is largely the management of larger areas and is habitat focused. For ecologists, an ecosystem is the interaction of organisms with their abiotic and biotic environment. It is a process-based discipline. From an ecosystem scientist's perspective, ecosystem processes are largely missing from this plan. A true ecosystem approach would be appropriate. This would allow processes such as migration, survival of droughts, woodland hydrology, sand movement, and climatology to be intimately incorporated into decision making. These are scale dependent.

While we do not recommend focusing on describing or modeling processes such as net primary production, nutrient cycling, many ecosystem processes directly relate to the biota and can form the basis of a management strategy.

Particular processes that should be evaluated are:

- Disturbance-These range in scale from the diggings of tortoises to disease, fire and climate change. These also include anthropogenic perturbations. Those human disturbances that are similar in space and time to natural disturbances may not have a major effect as organisms can adapt to these. Those outside of natural scales are likely to be devastating. For example, some mining activities and some roads may resemble flooding events. Increasing fuel loading coupled with increases in exotic weed seed brought in along some roads may result in fire, a widespread disturbance that these organisms are likely not adapted to.

- Disease-Diseases are devastating particularly to local wildlife. However, we know little of the dynamics of disease. Is this a naturally recurring process, or only recently introduced. Why and how does it spread?

4. What conservation principles can be used to guide selection and design of management zones?

There are important principles that can be used to guide work. However, these sometimes will be (or seem) contradictory. Existing guides and development of minimum population viability models could be helpful.

Fragmentation is clearly a critical process for this region. Agency scientists should review concepts related to fragmentation. Two issues stand out, however. On one hand, the bigger the reserve, the better. This comes from the knowledge that as a habitat is fragmented, the population is split. That makes both populations more susceptible to extinction. Thus, the larger the reserve for any critical species, the better.

Over the longer term, fragmentation also reduces gene flow. Genetic change is critical to the long-term survival of a species. As fragmentation splits populations, these can no longer exchange genes and retain the array of genetic material necessary to survive large-scale environmental change.

However, should one then make a single large reserve? The qualifier is that a single area is also more susceptible to a single catastrophic event. A single hurricane or fire could devastate a single preserve. Further, a single reserve can serve to increase the incidence of the spread of disease. As both the bighorn sheep and the desert tortoise are affected by disease, maintaining multiple populations, some of which interact minimally, is also important. This is a function of finding and maintaining multiple sites where viable populations can be maintained.

We recommend careful evaluation of minimum viable population models and assessment of their applicability to the differing areas.

In this vein, many potential suitable habitats are found to be unoccupied. These are often deleted from consideration. However, many of these species exhibit metapopulation characteristics, that is, they exist in separated populations and only occasionally intermix. As one metapopulation becomes extirpated because of disease or catastrophic disturbance, another will eventually migrate to that location and re-establish a new metapopulation. Elimination of "unoccupied" habitats should be carefully considered.
The migration of critical species must be known. The importance of corridors must be considered and the possible species using corridors and the locations of those must be documented. That brings out the need for point distributions of sightings as opposed to polygon GAP-type analyses.

However, many species likely also do not move across the landscape in corridors, they simply diffuse across a landscape. Those individuals encountering obstacles largely die, and a few individuals may percolate across the hostile region. Knowing the migration pattern is essential to protecting migration routes and, if necessary restoring stopover locations.

Biodiversity is a topic that is widely touted. Use of GAP models is a common activity. The development of the GAP analysis was a valuable set of information. However, biodiversity *per se* is not necessarily the goal. It is the maintenance of critical species and of native organisms that make the ecosystem function in a predictable, desirable manner. The introduction of exotic species can increase diversity but, over a longer time, these species can alter nutrient cycling or standing dead material that facilitates detrimental processes, such as fire or increasing secondary compounds detrimental to the native animals.

These processes clearly demonstrate the need for an iterative reserve design. That is, upon placement of a suite of reserves, the populations need to be monitored and new locations protected or created as more data become known or change through time. This is classical adaptive management. Most models assume equilibrium conditions. However, we know that these ecosystems are not in equilibrium. Non-equilibrium successional models and metapopulation models must be incorporated into and adaptive management strategy.

We view restoration as an essential management concept. While it does not necessarily serve as a viable mitigation approach, it can become important for creating migration stopover points, or reconstructing habitats already destroyed. Further, in an adaptive management strategy, restoring some habitats in what are found to be critical areas will be essential for specific habitats. The mechanisms of restoration, using succession theory, in particular, initial succession models and restoring soil and hydrological functions will become essential. These areas can be expanded in future evaluations

5. How can we include flexibility?

An adaptive management strategy is absolutely critical to the plan. We recommend 2 specific steps:

- First, protect large areas including currently unoccupied habitats.
- Second, take an adaptive management approach; use management decisions as experiments.

Protecting as much existing habitat using current reserves and new lands, as they are available is important to extant populations. However, it is crucial to remember that if these species are to be de-listed, they must increase, meaning must expand into currently unoccupied areas.

We strongly encourage having research scientists and managers partner in all reserve design, management strategies, and monitoring (we view this a long-term research). These data can be valuable in pointing directions for changes of management strategies and for formulating theory useful for future management decisions. This is useful for managers. Research scientists can provide input to making the sampling strategies that are statistically powerful thereby helping in planning and in developing new theory. For both, thresholds are poorly understood. These need to be addressed, prioritized, and utilized in future decisions both here and elsewhere.

This must include careful data collection, management, and archival of all monitoring data. Further, we recommend the following data sets in the monitoring schemes:
For tortoises:

- population structure. These must include life tables, with an age structure robust enough to develop models of population growth or decline.
- epidemiology. These must derive from the population structure models to assess if there are susceptible ages or conditions. These should be specifically addressed.

For bighorn sheep:

- population structure
- migration patterns

For habitats: monitoring must include not only "good" habitat. We understand little of the recovery of habitats in a successional or restoration context. However, if populations are to rebound, these relationships must be understood. We suggest that as mining operations end, or unnecessary roads are closed, that the operators, managers, and research scientists cooperatively develop recovery and monitoring plans to study success and failures (which are just as important to document as successes) of recovery plans. These should also incorporate appropriate frequency. Some parameters need annual monitoring, others shorter or longer. These need to be appropriately assessed.

Data management is essential. Information in not acceptable unless published in a peer-reviewed format. That is, it should stand to appropriate criticism.

Overall Concerns:

- Decision-making must become an iterative process. Science is not a one-time answer, as experiments and monitoring efforts occur, they generate new information that must be fed back into the management process. It is only through this approach that the value of science can truly be gained.
- Information gained must stand public scrutiny; that is, it should be published in a peer-review format.

Research and monitoring costs should be a part of doing business. It should focus not only on "pristine" sites, but also on potential recovery and devastated sites to evaluate the opportunities for restoration. After all, the goal is to de-list species, which requires more, not less habitat. Linking potential sites with the UCR-NRS would be a valuable approach for developing comparisons and in developing a data management program. The public, management agencies, local governments, and research scientists should interact in the process of plan development and in the continued monitoring and iterative management decisions. It is through this effort, public confidence can be improved, the management becomes scientifically based, and the theory necessary to manage these lands and others gained.

Appendix J
Guidelines for Domestic Sheep Management in Bighorn Sheep Habitats

The following is excerpted from Appendix C of *Mountain Sheep Ecosystem Management Strategy in the 11 Western States and Alaska.* U.S. Department of the Interior, Bureau of Land Management. 1995. Rept. BLM/SC/PL-95/00+6600. 79pp.

Guidelines for Domestic Sheep Management in Bighorn Sheep Habitats

The Bureau of Land Management desires progressive bighorn sheep management compatible with appropriate grazing on public lands by domestic sheep. It is recognized by State and Federal Agencies, bighorn sheep organizations, and the domestic sheep industry that:

A. There appears to be some diseases that are shared by domestic and bighorn sheep. There is evidence that if bighorn and domestic sheep are allowed to be in close contact, health problems and die-offs may occur. Some diseases may be transmitted between both species;

B. There are bighorn sheep die-offs that occur with no apparent relationship to contact with domestic sheep;

C. The above two observations are both valid and not mutually exclusive;

D. Bacterial pneumonia are not the only diseases of concern, although perhaps they are the most catastrophic;

E. The risks of disease transmission are often unknown; they may, however, be site specific, and;

F. Reasonable efforts must be made by domestic sheep permittees and wildlife and land management agencies to minimize the risk of disease transmission, and to optimize preventative medical and management procedures, to ensure healthy populations of bighorn sheep and domestic sheep.

In recognition of the above factors, the guidelines set forth below should be followed in current and future bighorn/domestic sheep use areas.

1. State wildlife and Federal land management agencies, bighorn interest groups, and domestic sheep industry cooperation and consultation are necessary to maintain and/or expand bighorn sheep numbers.
2. When agency and industry agreement has been reached to maintain and/or expand bighorn sheep numbers, the agencies and the domestic sheep industry will be held harmless in the event of disease impacting either bighorns or domestic sheep.
3. Domestic sheep grazing and trailing should be discouraged in the vicinity of bighorn sheep ranges.
4. Bighorn sheep and domestic sheep should be spatially separated to discourage the possibility of coming into physical contact with each other.
5. Buffer strips surrounding bighorn sheep habitat should be encouraged, except where topographic features or other barriers prevent physical contact between bighorn and domestic sheep. Buffer strips could range up to 9 miles (13.5 kilometers) depending upon local conditions and management options.
6. Domestic sheep should be closely managed and carefully herded where necessary to prevent them from staying into bighorn sheep areas.
7. Trailing of domestic sheep near or through occupied bighorn sheep ranges may be permitted when safeguards can be implemented to adequately prevent physical contact between bighorns and domestic sheep.
8. Unless a cooperative agreement has been reached to the contrary, bighorn sheep should only be reintroduced into areas where domestic sheep grazing is not permitted, and the allotment(s) in

which bighorns are to be introduced should not have been used for domestic sheep grazing for two or more years prior to the bighorn release.

9. In certain special circumstances, extraordinary precautions will be followed to protect federally listed threatened or endangered subspecies; State listed subspecies; Federal candidate subspecies; and BLM Category II populations (BLM Rangewide Plan for Managing Habitat of Desert Bighorn Sheep).

10. For desert bighorn sheep (*Ovis canadensis nelsoni, O.c. mexicana, and O.c. cremnobates*), the following additional guidelines are recommended:
    1. No domestic sheep grazing should be allowed within buffer strips less than 9 miles (13.5 kilometers) surrounding desert bighorn habitat, except where topographic features or other barriers prevent physical contact.
    2. Domestic sheep trailed and grazed outside 9 miles (13.5 kilometers) buffer and in the vicinity of desert bighorn ranges should be closely managed and carefully herded.
    3. Unless a cooperative agreement has been reached to the contrary, domestic sheep should be trucked rather than trailed, when trailing would bring domestic sheep closer than 9 miles (13.5 kilometers) to occupied desert bighorn sheep ranges, especially when domestic ewes are in estrus.

11. These guidelines will be reviewed every 3 years by a work group comprised of representatives from the livestock industry, State wildlife agencies, BLM and bighorn sheep organizations.

Appendix K
Johnson Valley to Parker Motorcycle Race EIS (1980)

The following information is a highlight of the event design and required mitigation from the indicated EIS.

1. One annual running in October or November sponsored by the Checkers Motorcycle Club of the American Motorcycle Association. The event originated in the 1950s and has been conducted on various alignments over the years.

2. Type of event: point to point, mass start.

3. Length: 235 miles total - from Johnson Valley Off-Highway Vehicle Recreation Area to finish east of Vidal Junction (178 miles on roads, 42 miles on old race alignment, 15 miles new disturbance).

4. Three alternative segments are noted. NECO includes the environmentally preferred alternative

5. Johnson Valley Off-Highway Vehicle Recreation Area Area contains the start area and first 20 miles of race so waves of riders "funnel" down to an acceptable width for remainder of alignment.

6. Start: 2 waves with 400 participants in each wave for a total of 800 participants.

7. 4 pits, each of about one acre or less at intervals of 40-50 miles. Access to pits is by highway and other non-race course roads.

8. Few spectators (and spectator issues) anticipated. All spectators are required to park and confine activities to defined areas and not engage in indiscriminate vehicle free-play.

9. Course width is 200 feet (100 feet either side of centerline), reduced for points/areas of sensitive resources to 10-25 feet in places. About 30 feet of the course width, including sections on roads, are most heavily used with reduced use and disturbance outboard from centerline.

10. Additional requirements not specified here include details about course marking of standard and sensitive areas, event administration, legal aspects of permitting, and safety.

11. Wet conditions: event must be canceled or postponed.

12. Sensitive areas: protected through routing, barriers, flagging, reduced speeds.

13. Rehabilitation: sponsor is required to grade roads and restore unacceptable damage.

14. Monitoring: required to assure anticipated execution and proper event administration, identify need for damage restoration.

Appendix L
Route Inventory Process

Each BLM field office was responsible for conducting an inventory of 100% of all routes within their respective boundaries. The objective was to complete an inventory of *routes*, not vehicle tracks. In some instances, there is not a clear distinction between a route and multiple sets of vehicle tracks, thereby necessitating "interpretation" of the circumstances while in the field. A determination as to whether the surface evidence of prior vehicle use is significant per definition of "existing" routes in the CDCA Plan, as amended, was required.

Also, many routes within the planning area that were established many years ago and have appeared on various maps no longer receive any apparent use as evidenced by the occurrence of substantial natural reclamation. Since the degree of natural reclamation varies from one location to another, the individual conducting the field inventory had to determine if the route was sufficiently visible such that it could be reasonably followed without destroying vegetation or deviating from the course. If not, the route would be considered as a "non-route" and would be noted as such during the inventory process.
"Non-routes" are defined as follows:

> Non-routes are previously-existing routes which have been substantially reclaimed by the forces of nature. Some of these non-routes are delineated as existing routes on the most recent versions of 1:24,000 U.S.G.S. maps. Nevertheless, an on-the-ground survey revealed that such routes (1) cannot be located due to complete or near-complete reclamation, (2) are intermittently visible thereby encouraging intermittent cross-country travel where evidence of the route disappears, and/or (3) have been revegetated to the extent that, although visible, travel upon them would require the crushing of substantial vegetation (destruction of natural features).

Although an attempt was made to inventory 100% of the routes within the NECO planning area, it is likely that some routes were overlooked. In addition, given the occasional interpretation required to distinguish multiple sets of vehicle tracks from legitimate routes of travel, or in ascertaining if natural reclamation has sufficiently obscured a route such that it is now considered a "non-route," not everyone may agree on the determination.

To ensure that the inventory reflects the existing situation, the public was requested in 1996 to review the route inventory maps and submit comments as to the completeness of the inventory. Opportunity to review the maps was afforded up to release of the draft NECO Plan. Few comments were received; based on those comments, some revisions to the route inventory occurred.

Route Inventory Process by Field Office

El Centro Field Office

The route inventory for the NECO Plan began with a series of maps that had been developed over the last 15 years as the El Centro Field Office worked on the route designation process; designation decisions were made over that period for a limited number of routes. With these maps in hand, a team of volunteers was sent to the field in 1995 to identify routes that had not been delineated. The newly-identified routes were digitally recorded with Geographic Positioning System (GPS) instrumentation and transferred into ARC/INFO, a software program for managing computerized spatial data. At the same time, routes appearing on previous versions of inventory maps were either recorded with GPS instrumentation by the field team or digitized by field office staff. The field team also surveyed these routes for present condition and location.

Routes that had disappeared due to lack of use were noted. Routes exhibiting changes to alignment due to wash shifts or erosion problems were "GPSed" and updated in ARC/INFO.

Subsequent to public review of the route inventory in 1996, additional field surveys in specific locations were undertaken in 1997 to augment the inventory with routes that had been overlooked during previous inventory efforts. In refining the inventory further, additional corrections were made in 1999 upon identification of "non-routes" previously ascertained as existing routes.

Palm Springs-South Coast Field Office

As in El Centro, the process of route inventory began prior to initiation of the NECO Plan. The previously-developed, but incomplete inventory was the basis for undertaking an intensified effort for the Plan. With the use of GPS instruments, the Palm Springs/South Coast Field Office staff took to the field to reevaluate existing route locations as well as augment the inventory upon discovery of unmapped routes. The GPS instruments were used to determine route locations through recordation of point coordinates directly onto maps--point data was not digitally stored in the GPS units for transfer to ARC/INFO. Based on field information, clean-copy route inventory maps at the 1:24,000 scale were developed. Route locations were digitized from these maps for incorporation into the data base.

Needles Field Office

Unlike the El Centro and Palm Springs/South Coast Field Offices, the Needles Field Office did not begin the NECO Plan route inventory effort with a base inventory other than as appears on U.S.G.S. quadrangles. In 1994, the inventory effort began with a full-time volunteer along with field office staff collecting route location data with GPS instruments. The objective was to drive every route within the planning area and digitally record their locations. "Non-routes" were digitized from maps at the 1:24,000 scale.

Appendix M
Artificial Water Sources for Bighorn Sheep, Deer, and Other Wildlife

Design, Installation, Operation/Maintenance

Traditionally, for the past 40 years or more, several designs of artificial waters have been used for both small and large animals with varying degrees of costs, effectiveness, and difficulties to operate and maintain. These include:

- Small animal "guzzlers" - primarily for upland game birds - utilize small area catchments that catch and direct rainwater that falls over a few hundred square feet of concrete or asphalt to a tank of a few hundred gallons. Many of these are still in place and operational. Due to small capacity, they tend to dry up in periods of drought. Most have been modified to prevent entrapment and death of the desert tortoise. Few if any of these have been built in the last 20 years.
- For large animals, primarily for bighorn sheep and desert mule deer, the standard design has been a complex of features: water flow catchment in a wash, a pipeline to a set of fiberglass tanks, and a valve-based drinker. These were usually built on the sides of mountains in rocky areas. They hold a few thousand gallons of water. Dozens of these were built and most are still operational. They require significant time and expense to maintain and rebuild. Helicopters are often required to build/rebuild. The valve means that there are moving parts which can fail, either rendering the water unavailable or draining all the water. Tanks have collapsed and killed sheep. These may also dry up in prolonged drought.
- Some windmills/troughs are in place. They also require considerable maintenance and, due to their high profile, are subject to vandalism. About nine are in the Sonoran Desert, are shallow in depth and have dried up in the last two years. These primarily provide water for large animals.
- In very rocky areas of the Sonoran Desert natural water catching/holding rock tanks (tenajas) have been modified with steps and dams to allow access for bighorn sheep and deer. Water capacity is usually limited. Helicopter water drops have been required in times of drought.
- In the last few years a new concept in design and placement of drinkers has been developed that is considerably advanced over the above: less expensive to install and maintain, water is available for all sizes of wildlife, several times more water storage capacity than any other design, and, being almost entirely underground, imposes the least visual intrusion possible. There are no moving parts. Large animals utilize steps to reach water, while small animals utilize a roughened straight-line ramp. This design (with slight variations for special situations) has been used exclusively in the Sonoran Desert for the last 10 years and is the standard design proposed in this Plan. . In this Plan this type will be referred to as the "Underground Drinker".

Underground Drinker

1. Design is shown in Figure M-1 and Photo M-1(complete drinker).

2. Location consideration
    - For Bighorn Sheep proposed new drinker locations are generally at the toe of mountain slopes for the following reasons: force sheep to travel through more area of forage to access water, ease of access, removal from wilderness areas as much as possible
    - For deer sites are proposed in deer habitat, normally below the elevation of wilderness areas
    - Table M-1shows the number of proposed drinkers in BLM wilderness areas

3. Water spacing
   - The number of waters proposed would introduce Bighorn Sheep and deer to the maximum amount of new forage which would achieve goals of increasing population number and viability
   - The basis for general spacing is that Bighorn Sheep and deer is recent research which indicates that the two species forage away form water to about three miles, depending upon the time of year.

4. Installation
   - Access is via existing roads or, much more common, navigable washes. In the latter case all vehicle tracks are brushed out upon completion and departure.
   - Duration of installation is two days.
   - Installation equipment involves two to three pick-up trucks, some hauling people and materials and one pulling a backhoe.
   - Installation disturbance area for the tank/drinker is 15' x 60', for the pipeline is about 50' x 2'. Tank entrance is not visible to the casual observer from more than 150', especially if placed behind shrubs/rocks/against a hill. "Artificial" rocks are built if tanks sits higher out of ground. A 6" x 15' dam of native rocks and concrete is also built across a wash swale (about 3'-10' wide) to catch and direct water. Nearly all facilities are below ground as shown in the drawing and photo. The tank entrance and dam are only features above ground or visible. All soil disturbance is brushed out as a final step.

5. Operation & Maintenance
   - Access and brush out are the same as for installation.
   - Duration of stay is a few minutes to hour to inspect and perform minor work. This design has required no major repairs or water hauling since installation at nearly all sites.
   - Frequency of visit is usually one visit per year.
   - Equipment usually consists of one 4x4 vehicle, an SUV or pick-up.

6. NEPA and tiering

   The Plan proposes a programmatic proposal for waters for the Sonoran Metapopulation with no installation priority distinction. (A proposal for new drinkers in the Southern Mojave Metapopulation will be made at a later date when CDFG initiates planning for this area. Waters have been generally located on 7 ½' USGS topographic maps and entered into GIS. Waters will receive 2 levels of NEPA review:
   - NECO includes analysis of general biological need/effects including effects on wilderness values
   - Waters will be built over a long period of time at the rate of about 4-6 per year receiving 2nd NEPA review the year of or prior to funds being requested/received. Subsequent NEPA review will tier from NECO and address specific siting and subjects such as visibility, wilderness, access route, vandalism, cultural values, and any deviation from approximate location and typical design, etc. Drinkers proposed any given year will represent the highest priority at the moment. On an annual basis all waters in a given metapopulation will be proposed and addressed in a NEPA document in one batch and include a verification of need as originally proposed in NECO. Verification will include population status, trend, results of monitoring, and how the proposal for that year would address/help the population.

Figure M -1 Underground Drinker

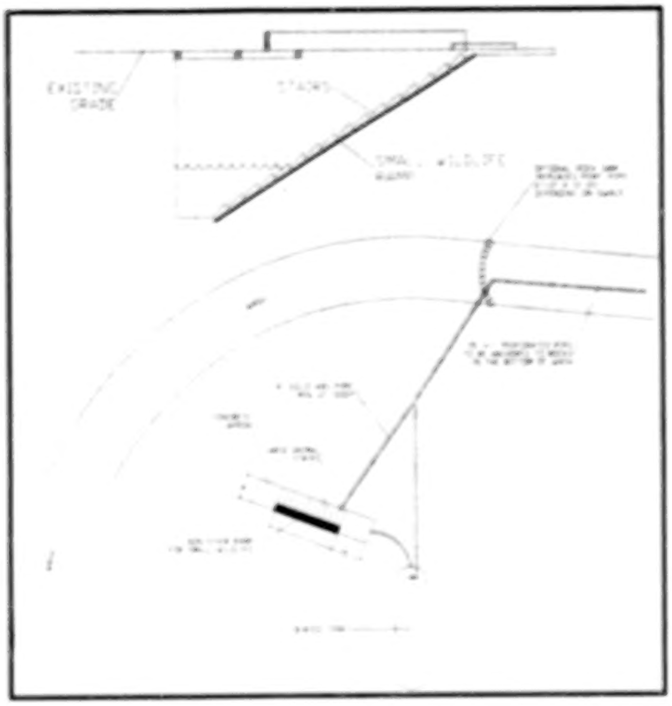

Figure M-2 Exclosure

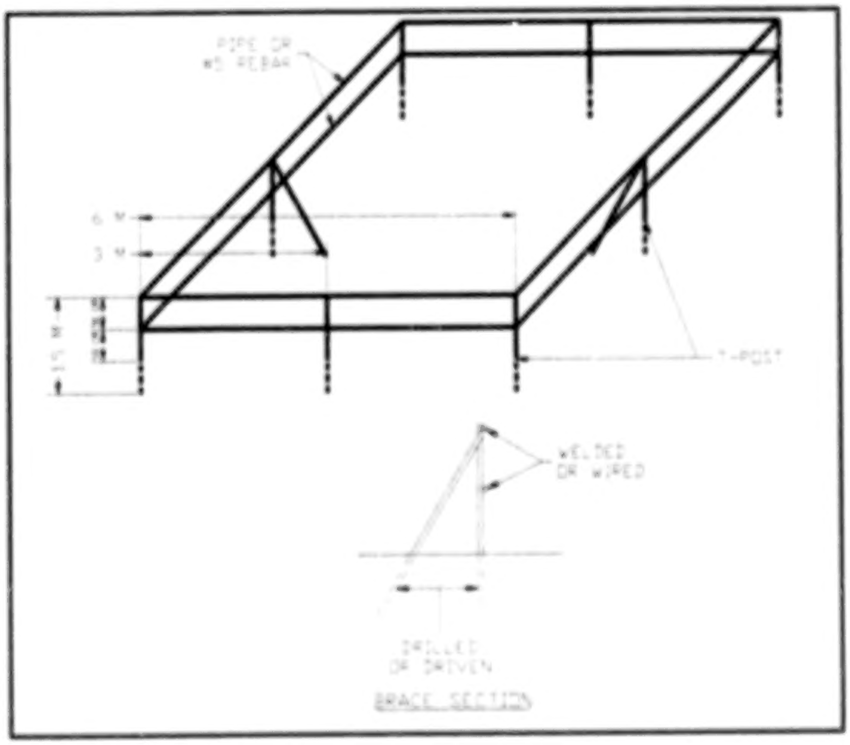

Table M-1

[illegible]	Number of Proposed Artificial [illegible]			
	Deer only	[illegible] Sheep only	[illegible]	[illegible]
Chuckwalla Mountains	0	2	3	5
Indian Pass	0	7	1	8
Little Chuckwalla Mountains	0	0	1	1
Little Picacho	0	2	1	3
Orocopia Mountains	0	4	0	4
Palo Verde Mountains	2	0	0	2
Picacho Peak	0	0	1	1
Total	2	15	7	24

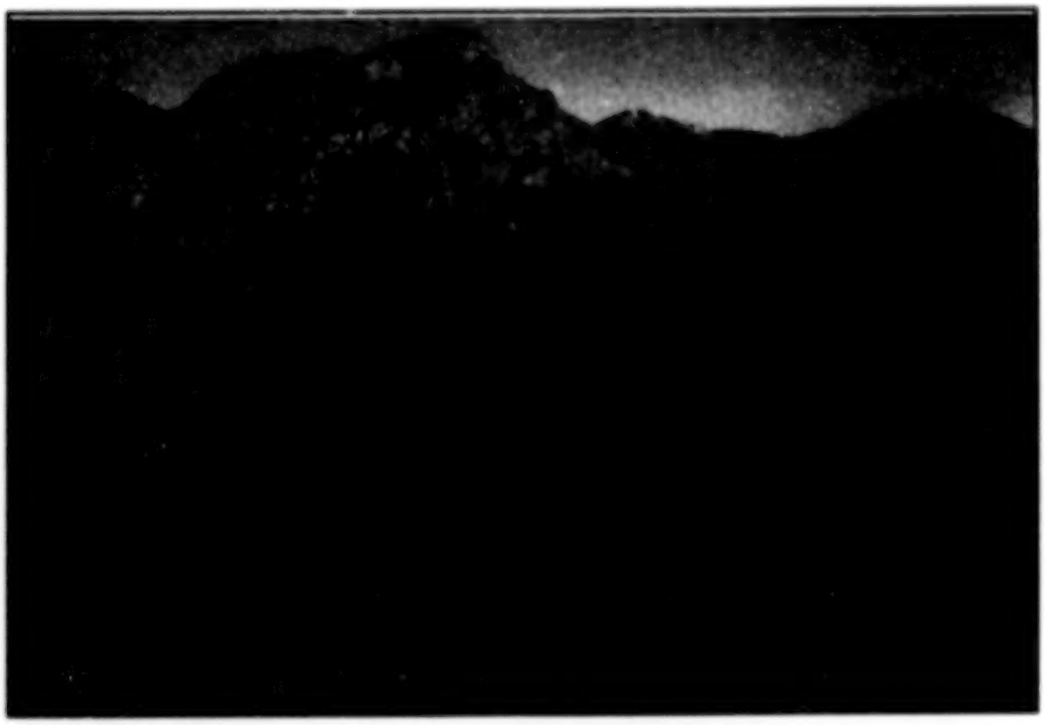

Photo M-1 Underground Drinker (Sonoran Desert Plant Community Scrub).

Appendix N
Wildlife History and Wildlife/Plant Tables

The first part of this appendix contains life histories or species accounts for special status wildlife species. These descriptions provide additional information not included in Chapter 3. The second part is a set of management analysis tables for all special status species. These support various descriptive and affects analysis statements contained in Chapter 3 and 4.

Desert bighorn sheep (*Ovis canadensis* subspecies *nelsoni*)

Desert bighorn rams often reach 220 lbs and have large, thick, curved horns. Ewes weigh about 130 lbs and have slender, slightly curved horns. Their hooves have a hard outer edge and a spongy center that provides good traction even on sheer rock.

Desert bighorn sheep occur in small herds usually of about ten animals. They are active during the day, feeding in the early morning and late afternoon in steep, open habitats with low-growing vegetation. They prefer green, succulent grasses, forbs, and shrubs in varying proportions due to seasonal availability and species present.

In some studies, abundance and distribution were directly related to availability of free water. However, bighorn sheep may use moisture in forage or consume barrel cactus (*Ferocactus* spp.) when there is no access to surface water. The highest potential for water stress is during the hot, dry parts of the year from mid-June to mid-September.

The reproductive period, or rut, begins in June with most of the breeding occurring from July through September. Groups of ewes occupy a home range and are visited by traveling rams. Lambing occurs from January to April. Ewes usually seek out a precipitous slope with an unobstructed view and shelter to give birth.

Disease has been a major factor in bighorn subpopulation losses in some areas. Other impacts include competition for forage and water with burros and livestock, predation, and loss of critical lambing and foraging habitat.

Desert bighorn sheep is a BLM California Sensitive Species and a State Fully Protected Species and a Game Species.

Burro deer (*Odocoileus hemionus eremicus*)

Burro deer eat foliage from various riparian and microphyll woodland trees, such as willow, palo verde, and ironwood. Various other shrubs complete the diet depending on the season.

Major threats to burro deer are loss of habitat to agricultural development, urbanization, and tamarisk infestation along the Colorado River and, at least in the 1980's, drowning in the Coachella Canal.

Burro deer is a State Game Species.

Mountain Lion (*Felis concolor*)

Within the Planning Area mountain lion are restricted to the southern Colorado Desert from Joshua Tree National Park south and west to the Colorado River. They are found in very low numbers primarily in the mountains and wash systems in Imperial County. Burro deer, the primary prey, are known to spend the hot summer and fall in riparian areas along the Colorado River and in dense microphyll woodlands near the Coachella Canal. In winter and spring they move up major washes north from the Coachella Canal and west from the Colorado River. Presumably mountain lions respond to these movements. It may be that mountain lions in the Planning Area are merely transient individuals wandering out of other areas and not part of a resident population of mountain lions.

Mountain lions are active year-round. They forage mostly at night and commonly seek daytime cover in caves and thickets. They are generally solitary animals, but young will stay with their mother until sometime in their second year. Males generally hold a large territory containing ranges of several females. Other, non-breeding males are transient over a wide area. Individuals may move seasonally in pursuit of their primary prey, which is deer. When available, they also eat other large mammals, such as burros, bighorn sheep, coyotes, rabbits, rodents, and skunks. Mountain lions apparently do not require drinking water.

Habitat fragmenting factors, such as Interstate Highways (especially Interstate 10) and aqueducts (especially the Coachella Canal), that affect the distribution and movements of burro deer are probably important to the distribution of mountain lions in the Planning Area. Deer populations along the Colorado River have declined as tamarisk has replaced native riparian vegetation; mountain lion numbers have probably declined with this primary prey.

The mountain lion in the Planning Area is sometimes referred to as Yuma puma (f.c. browni). Under that name it is a State Species of Special Concern.

California leaf-nosed bat (*Macrotus californicus*)

California leaf-nosed bats occur in the deserts of California, southern Nevada, Arizona and south to northwestern Mexico. In California, they are now found primarily in the mountain ranges bordering the Colorado River Basin, with some records occurring as far west as the Eagle Mountains. In California, surveys showed about 20 maternity colonies and about the same number of winter roosts (Map 3-4c Appendix A). The two largest roosts (each sheltering 1500 bats in winter) are in mines in extreme southeastern California. Almost all known roosts are in warm mines.

California leaf-nosed bats occur in lowland desert habitat in California in close proximity to desert wash vegetation. They are dependent on either caves or mines for roosting habitat. All major maternity, mating, and overwintering sites are in mines or caves.

Due to restrictive temperature requirements, California leaf-nosed bats seek out mines that provide roost temperatures of approximately 80°F. In the Colorado River Basin, all known winter roosts are in geothermally-heated mine workings, and the areas used by the bats may be over a half-mile underground.

California leaf-nosed bats can be distinguished from all other western bat species by a combination of large ears, grey pelage, and an erect, leaflike projection from the tip of the nose. They forage primarily in desert washes, generally within one to three miles of the roost. They feed primarily on diurnal insects, such as moths, butterflies, grasshoppers, and katydids which they glean off surfaces. Although they can echolocate, they appear to forage utilizing hearing and vision. They do not drink water.

Females congregate in large (usually 100-300 bats) maternity colonies in the spring and summer. Within the larger colonies, clusters of five to 25 females will be associated with a single male that defends the cluster against intruding males. Large male roosts may also form. The single young is born between mid-May and early July. Maternity colonies disband once the young are independent in late summer. In the fall, males aggregate in display roosts and attempt to attract females. They do not hibernate or migrate.

The primary factors responsible for the declines are roost disturbance, the closure of mines for renewed mining and hazard abatement, and the destruction of foraging habitat. The combination of limited distribution, restrictive roosting requirements, and the tendency to form large, but relatively few colonies make this species especially vulnerable.

California leaf-nosed bat is a State Species of Special Concern.

Occult little brown bat (*Myotis lucifugus* subspecies *occultus*)

Occult little brown bat is a medium-sized myotis that is difficult to distinguish from other *Myotis* species. In California, they are associated with desert riparian vegetation along the Colorado River. Females form large maternity roosts. Although males have been found associated with colonies in late summer, they are not present when the females are rearing a single young. They forage close to water and riparian vegetation, primarily on flies, moths, beetles, bugs, and other small flying insects.

They have a relatively limited distribution from the southwestern United States to central Mexico. In California, they are known from only a few localities along the Colorado River between Needles and Yuma (Map 3-4c Appendix A). The only maternity colony in California was located under a bridge near Blythe until 1945 when the bridge was demolished. It was the largest maternity colony ever known for this species. The species has not been seen in California since 1969. Occult little brown bats are probably extirpated from California, even though the species is the most common bat in the U.S.

In addition to destruction of its major roost site in California, the loss of riparian vegetation to agriculture and tamarisk along the Colorado River may also be a factor in the species' decline.

Occult little brown bat is a State Species of Special Concern.

Cave myotis (*Myotis velifer*)

Cave myotises are relatively large bats that occupy desert scrub, desert succulent shrub, microphyll woodland, and desert riparian habitats along the Colorado River (Map 3-4c Appendix A). They roost primarily in caves and mines but have also been found in buildings and under bridges. They tolerate high summer roost temperatures. The humidity in the caves is always high and often there is standing or running water present. They form large colonies in excess of 1000 individuals. Mating occurs in the fall and winter with a single young being born in June or July. Migrating out of the area during winter, the cave myotis appears to return to the same summer roost sites year after year.

Cave myotis feed on a variety of flying insects with a large portion of their diet consisting of moths and beetles. They forage over open water close to riparian vegetation in the Colorado River floodplain. They may fly considerable distances to feeding areas. Water for drinking is required.

Most historic records in California are from abandoned mines in the Riverside Mountains. The mines that once housed these large colonies no longer have them. Up to the 1950's, very large colonies were present in these mines from early April through August. Despite extensive survey work in the Planning Area over the past 25-30 years, there are currently only two known maternity roosts for cave myotis along the Colorado River: one with approximately 300 animals, and the other about 200. A mine in the Cargo Muchacho Mountains and a mine in the Riverside Mountains have large deposits of cave myotis guano, but surveys in 1993 showed none and few bats, respectively, at these sites.

The loss of extensive native vegetation to agriculture and tamarisk along the Colorado River may explain the dramatic declines of this species in California. The use of pesticides in the agricultural areas could have reduced the prey base and/or poisoned the bats.

Cave myotis is a State Species of Special Concern.

Fringed myotis (*Myotis thysanodes*)
Fringed myotises are widespread in much of the West. They occur irregularly throughout the State primarily in pinyon-juniper woodlands, coniferous forests, and oak woodlands, except in the Central Valley and the deserts, where it is known from only a few places. In the Planning Area, only two roosts in the Old Woman Mountains have been found; one of these is a significant maternity roost (Map 3-4d Appendix A).

Fringed myotises are named for a row of stiff hairs along the bottom of the interfemoral membrane. They roost in caves, mines, buildings, and crevices. They eat primarily beetles, but also moths, spiders, and grasshoppers foraging mostly at night over open habitats or over streams, lakes, or ponds. Foraging flight is slow, and they may use wings and tail membranes to capture their prey. They require drinking water.

Maternity colonies form in the spring in caves, mines, or crevices. A single young is born in the late spring or summer. In the fall, they may migrate a short distance to a suitable winter hibernaculum.

Closure of mines could disturb the few desert sites known for the species. They are easily disturbed at roosting sites.

Fringed myotis has no special status.

Pallid bat (*Antrozous pallidus*)
Pallid bats are known from Cuba, Mexico, and throughout the southwestern and western United States (Map 3-4b Appendix A). Population trends are not well known, but there are indications of decline. Urbanization, destruction of old buildings, disturbance in caves and old mines, and eradication as a pest are threats to the species.

Pallid bats are a large, long-eared bat readily distinguished from all other California bats by a combination of large size, large eyes, large ears, light tan coloration, a pig-like snout, and a distinctive skunk-like odor. Pallid bats occur in a number of habitats, including coniferous forests, nonconiferous woodlands, brushy terrain, rocky canyons, open farm land, and deserts. They roost primarily in rock crevices, but commonly in old buildings, under bridges, in caves and old mines, and in hollow trees.

Pallid bats are intolerant of roost temperatures above 40° C, and they often occupy roosts that offer a varied temperature regime. They are very sensitive to disturbance at the roost, and upon disturbance they will generally retreat or abandon the roost. Nevertheless, their loyalty to a chosen roost (particularly buildings, mines, and bridges) is generally high.

Pallid bats forage primarily on large arthropods caught on the ground or gleaned off vegetation. Between foraging bouts, pallid bats congregate in night roosts in mines, buildings, and under bridges.

Typical maternity colonies contain 30-70 animals, although colonies of several hundred have been found. Colonies form in the spring (March-May) and stay together until October. Females give birth to one or two young in early summer. They are not known to migrate, but presumably spend the winter hibernating close to their summer roosts.

Pallid bat is a State Species of Special Concern.

Townsend's big-eared bat (*Plecotus townsendii*)
Townsend's big-eared bats are distributed throughout the western United States. Recent surveys show marked population declines for this species in many areas of California (Map 3-4b Appendix A). A combination of restrictive roost requirements and intolerance of roost disturbance or destruction has been primarily responsible for population declines of Townsend's big-eared bats in most areas. The tendency for

this species to roost in highly visible clusters on open surfaces, near roost entrances, makes them highly vulnerable to disturbance. Roost loss in California has usually been linked directly to human activity (e.g., demolition, renewed mining, entrance closure, human-induced fire, renovation, or roost disturbance). The loss of foraging habitat is also a probable factor in declines of populations in along the Colorado River, where the native floodplain community has been lost to agriculture and tamarisk infestation.

Townsend's big-eared bats are a medium-sized bat distinguishable by the combination of a two-pronged, horseshoe-shaped lump on the nose and large, rabbit-like ears. They occur in a wide range of habitats, but population concentrations occur in areas with substantial cavity forming rock (e.g., limestone, sandstone, gypsum or volcanic) and in old mining districts. They will also roost in old buildings, in tunnels, and under bridges.

Townsend's big-eared bats feed primarily on medium sized moths, but also consume other insects, such as beetles and flies. The proximity of good foraging habitat appears to be a determining factor in roost selection. In a recent survey in the Panamint Mountains, mines with suitable temperatures were occupied by maternity colonies only within 2 miles of a canyon with water.

Big-eared bats form maternity colonies in the spring varying in size from a dozen to several hundred animals. During this period, the females create densely-packed clusters (100 bats in a one-foot circle). Maternity clusters are always situated on open surfaces, often in raises in the ceiling just inside the roost entrance where warm outside air is trapped. Single pups are born between May and July. In the winter, cooler temperatures are required for hibernation sites, and the bats may move a short distance to caves or mines at higher elevations. In desert areas, old mines may contain from one to several dozen individuals.

Townsend's big-eared bat is a State Species of Special Concern.

Pocketed free-tailed bat (*Tadarida femorosaccus*)

Despite only a limited number of records, pocketed free-tailed bats are known to occur in the desert from March through August, when they then migrate out of the area. They have an uneven distribution in the southwestern United States and Mexico. In California, they are found primarily in creosote bush and chaparral habitats in proximity to granite boulders, cliffs, or rocky canyons. Recent observations in California show that this species occurs at only isolated locations in the southern third of the State (Map 3-4b Appendix A).

Pocketed free-tailed bats tails extends beyond the edge of the interfemoral membrane. They roost primarily in crevices but occasionally in caves and old buildings and feed primarily on large moths, but will also consume crickets, grasshoppers, flying ants, beetles, froghoppers, and leafhoppers..

Rockclimbing and pesticide spraying may be threats, but specific information is lacking.

Pallid bat is a State Species of Special Concern.

Western mastiff bat (*Eumops perotis*)

Historical records for the western mastiff bat were primarily in southern California between the Colorado River to the coast, but populations are now known to occur throughout the State (Map 3-4b Appendix A). Current population trends are not known. They are found in a variety of plant communities, but they roost in cliff faces of granite, sandstone, or basalt. Unlike most other North American bat species that mate in the fall, free-tailed bats breed in the spring and give birth to a single young in early to mid-summer. Colonies generally contain fewer than 100 individuals, and, unlike other North American bats, adult males and females may roost together at all times of the year. They move relatively short distances seasonally, but do not undergo prolonged hibernation.

Western mastiff bats have a free tail extending beyond the edge of the interfemoral membrane and large bonnet-like ears extending forward over the eyes. With a two-foot wingspan, they are the largest bats in California.

In California, western mastiff bats feed primarily on moths, but also eat beetles and crickets. They have been observed foraging at all hours of the day and up to 1,000 feet above the ground. They are strong, fast fliers and can cover an extensive foraging area in an evening. The species has been heard in open desert, at least 15 miles from the nearest possible roosting site.

Potential threats to the roosting and foraging habitat of western mastiff bats include urban expansion, rockclimbing, blasting, vandalism, extermination for pest control, and pesticide spraying. These large, noisy bats are vulnerable to the hysteria which often surrounds bat colonies.

Western mastiff bat is a State Species of Special Concern.

Colorado Valley Woodrat (*Neotoma albigula venustra*)

The range of Colorado Valley woodrat is from southern Nevada, southeastern California, northeastern Baja California, to western Arizona (Map 3-4c Appendix A). Historically, the range of the Colorado Valley woodrat appears to have changed little, even though portions of the range are lost to agriculture and urban development.

Colorado Valley woodrats (California subspecies of White-throated woodrat) are found in a variety of habitats including low desert, pinyon-juniper woodlands, and desert-transition chaparral. Areas such as washes where organic debris gathers are particularly attractive. They are often found where prickly pear cactus and mesquite occur. In rocky areas, they prefer using crevices in boulders for cover and nest sites.

In the hottest part of the year, water-rich cacti constitute 90% of the diet, even though it is toxic to most mammals. In areas with few cacti, Mojave yucca and then juniper are the most important food sources.

Colorado Valley woodrats are active at night, and during the day they retire into rock crevices or nests made from a variety of materials including cholla, sticks, remains of cactus fruits, bones, leaves, and trash. Nests are used for raising young, food storage, protection from predators, resting, protection from extreme weather, and sleeping. Successive generations may inhabit the same nest. When rock crevices are used for the nest site the woodrat places sticks, cacti and other objects in the fissure and runways. Dens are occupied by many species of arthropods, such as moths, crickets, bugs, harvestmen, and spiders, and a variety of animals, such as desert banded gecko, side-blotched lizard, zebra-tailed lizard, shrews, mice, and rabbits. Runways radiate from the nest and are often lined with cholla joints.

Timing of breeding varies geographically. Litter size is usually two, with a maximum of three young. They are active year-round and have no seasonal movements. They are solitary, occupy one den, and do not have territories. They are preyed upon by owls, coyotes, foxes, and snakes.

The most important threats are the loss of habitat and reduction in habitat quality by removal of nest material such as cactus and woodland. Habitat quality could be reduced by fires or conversion to exotic annuals.

The Colorado Valley woodrat is a State Species of Special Concern.

Mountain Plover (*Charadrius montanus*)

Mountain plovers do not breed in California, but they winter from northern California south to north-central Mexico and east to central Texas. In California they are found in the Central Valley, Antelope Valley, San Jacinto Valley, Imperial Valley, and Palo Verde Valley (Map 3-4d Appendix A). They begin to arrive on their wintering grounds in southern California in October. On their wintering grounds plovers forage for ground insects in loose flocks ranging from 2 to over 1,000 birds. Individuals change flocks and foraging areas frequently during the winter. Mountain plovers run or freeze from perceived harm rather than fly. Most individuals head northward between mid-February to mid-March. Migratory routes are unknown.

Mountain plovers are a medium-sized shorebirds with undistinguished plumage. Mountain plovers inhabit grasslands, alkali shrubland, and, especially in and near the Planning Area, freshly plowed, burned, or harvested agricultural fields. They favor habitats that have been burned or grazed areas and have abundant mammalian burrows and soils that are heavy, saline/alkaline, clays.

The breeding distribution is contracting, and the total population is reportedly down 63 percent since 1966. Population declines are probably not due to losses on the wintering grounds as some studies have shown that overwintering survival rates are high and the species is adaptable to non-native habitats.

The Mountain Plover is proposed for Federal listing as an endangered species.

Golden eagle (*Aquila chrysaetos*)

Golden eagles are the largest raptor in the Planning Area. They forage over rolling foothills and valleys and nest on cliffs in mountainous terrain (Map 3-4e Appendix A). Golden Eagles are found throughout North America. They are uncommon, permanent residents throughout the State, but they are most common in Southern California. In the NECO Planning Area only a few eyries are known.

They eat mostly rabbits, hares, and rodents, but they occasionally take snakes and other vertebrates as opportunity arises. They need open grassland or low shrub-land for foraging. They hunt by soaring, perching, or quartering during the day.

Some golden eagles migrate through the NECO Planning Area in Spring and Fall. Some may winter in and near mountains. A few nest in the NECO Planning Area. Nests, referred to as eyries, are usually on secluded cliffs with overhanging ledges. The large platform of sticks at the eyrie may be used for many years. Usually two young are raised in late spring and early summer.

The major threat is disturbance at the eyrie, especially in the early stages of nesting.

Golden eagle is a State Species of Special Concern and is protected by the Bald Eagle Protection Act.

Ferruginous hawk (*Buteo regalis*)

Ferruginous hawks do not breed in California. They migrate from their breeding grounds in the plains of Canada and the U. S. south to wintering grounds in eastern Colorado and western Kansas to southern Texas. They winter in very low numbers throughout the West. They are known to migrate through California in September and April. They overwinter in very small numbers from mid-October to mid-March in the lower Colorado River Valley , Yuha Basin, West Mesa, and the agricultural areas of Imperial Valley (Map 3-4e Appendix A).

Ferruginous hawks are large, broad-winged raptors. They are usually found in grasslands or sparse brushlands and use high, lone trees and powerpoles for perching. In winter they are found in desert scrub, the fringes of pinyon-juniper woodlands, grasslands, pastures, fallow winter croplands, and playas.

Ferruginous hawks hunt from high perches or by flying low over open terrain. They spend more time on the ground foraging than other hawks. They eat mostly small mammals, particularly rabbits and hares, ground squirrels, and mice, but also some birds, reptiles and insects.

Ferruginous hawk is a State Species of Special Concern.

Prairie Falcon (*Falco mexicanus*)
Prairie falcons breed throughout the arid West from southern Canada to central Mexico. The overall distribution appears to be stable. In the 1970's 35 eyries were found within the California Desert District with approximately 12 in the Planning Area. It is unknown whether these eyries are currently occupied.

Prairie falcons are uncommon residents and migrants of open grassland, savannah, and desert scrub habitats. They are found in areas of the dry interior where cliffs provide secure nesting sites. In the desert they are found in all vegetation types, though sparse vegetation provides the best foraging habitat (Map 3-4d Appendix A).

They prey mostly on small mammals, birds, and reptiles hunting mostly in the early morning and late afternoon except when feeding nestlings or when prey is scarce. During the nesting season, they typically forage within 6 miles of the nest.

The pair arrives on the territory by March. Typically the nest site or *eyrie* is on a sheer cliff with an overhanging ledge and a broad vista overlooking a hunting area. Nestlings hatch by early May and fledge by mid-June. The young begin to disperse in June and July and by early August fledglings have moved to wintering grounds. Within the Planning Area it is not known to what extent they move seasonally, but wintering populations in the Planning Area are larger than breeding populations.

Historic impacts have included eggshell thinning from pesticide residues, conversion of habitat to agriculture, robbing of eyries by falconers, and shooting.

Prairie falcon is a State Species of Special Concern.

Elf owl (*Micrathene whitneyi*)
The elf owl breeding range extends from southwestern California east to Texas and south into Mexico. Historically, the elf owl was found along the lower Colorado River and at oases as far west as Cottonwood Springs in Joshua Tree National Park (1940-1970) and Corn Spring (latest in 1994) in the Chuckwalla Mountains. Currently, its California range is only along the Colorado River from just north of Needles to Imperial Dam. Most of the suitable riparian habitat has been cleared for agriculture or lost to tamarisk since the mid-1970's.

Elf owls migrate from Mexico in the spring, arriving on their nesting territories in mid-March. Eggs are laid in May and early June with a clutch size of usually three eggs. The male feeds the female from the time of pair formation, at the end of March, until the young are half-grown. In August, they leave for the wintering grounds in Mexico.

Elf owls are very small, measuring only 5-6 inches tall. They are very rare in California and occur only in spring and summer along the Colorado River Valley (Map 3-4d Appendix A).

Elf owls are found at springs and riparian thickets where there is moderately tall, old and decaying cottonwood, mesquite, and willow trees and in saguaro. Elf owls are absent in tamarisk thickets that now predominate along the Colorado River. They nest only in tree cavities excavated by woodpeckers (commonly Gila woodpeckers and ladder-backed woodpeckers in California).

Elf owls prey primarily on large arthropods, such as moths, crickets, beetles, and scorpions and occasionally small lizards and snakes. Elf owls hunt at night from a perch or by hovering over the ground. Perches are located over open vegetation or grassland and are usually moderately-tall cottonwood, sycamore, willow, mesquite, or saguaro.

Elf owls are probably limited by nest site availability and may be out-competed by the introduced European starling for nest cavities. Starlings are highly aggressive and are known to evict other species from their nests. It has been hypothesized that more than one pair of elf owls may be needed in a subpopulation to mob predators or nest competitors.

The loss of mature, riparian habitat is the most important reason for this species' decline. Habitat loss has consisted of clearing and flooding for agriculture and water management and invasion by tamarisk. Frequent fires have also reduced suitable habitat and increased tamarisk.

The elf owl is State-listed as an endangered species.

Burrowing owl (*Speotyto cunicularia*)

Burrowing owls range from Texas west to California and from southern Canada south into Mexico. In northern climates they migrate south into the area in the winter. Burrowing owls were formerly common throughout much of California prior to the 1940's, but populations in central and southern California have declined in many areas due to agricultural development and urbanization. Little is know of the status of the burrowing owl in the California desert. Concentrations probably occur in agricultural drainage ditches of the Planning Area, just as they do throughout the Imperial and Coachella Valleys (Map 3-4e Appendix A).

Breeding begins in early March and ends in August. Burrowing owls are one of the few terrestrial birds to use the burrows of mammals for their nests, even though they are capable of digging. They will also use rock crevices, pipes, culverts, and nest boxes when burrows are scarce. Pairs may stay together during an entire year hatching clutches averaging about five young. After the breeding season, secondary burrows may be used for cover and roost sites. During the winter, attachment to a particular burrow is reduced even more. Resident birds in the Planning Area probably stay year-round.

Burrowing owls are long-legged owls standing about 8 inches tall. They are active during the day and inhabit open, level landscapes, such as dry grasslands, deserts, sparse shrub-lands, and farmlands.

Burrowing owls feed mostly on insects and scorpions, but they also eat small mammals, lizards, birds, and carrion. They forage at dawn and dusk, and during the summer they will hunt at night. They may hunt from a perch, hover, hawk, dive, or hop after prey.

Threats to burrowing owls are habitat conversion and destruction of ground squirrel burrows. Other threats may be accumulated pesticides, direct mortality from ground squirrel poisons, roadside shooting, and burrow destruction from canal and road maintenance.

The burrowing owl is a State Species of Special Concern and a USFWS Sensitive Species.

Gila woodpecker (*Melanerpes uropygialis*)

Gila woodpeckers range from the extreme southeast of California through Arizona south into western Mexico. They were formerly found along the entire lower Colorado River and in cottonwood groves in Imperial Valley. Now the species is found only at scattered locations along the Colorado River from Needles to Yuma, and they have disappeared in the Imperial Valley, except for a few pairs in Brawley. Within the Planning Area, Gila woodpeckers were known to occur in desert riparian washes (microphyll woodland) extending from the Colorado River as far as one mile away, but they are currently known only from scattered groups on the riparian corridor of the Colorado River (Map 3-4d Appendix A). They are more widespread in Arizona.

Gila woodpeckers are large, very active, noisy birds. They are found in desert riparian and desert wash habitats; in particular, they prefer cottonwood-willow riparian, saguaro woodlands, and mesquite woodlands.

Gila woodpeckers are opportunistic omnivores. They have been recorded eating insects, mistletoe berries, cactus fruits, galls, bird eggs, and acorns. They will also forage at bird feeders and garbage dumps. They usually forage by gleaning from trunks and branches of trees.

Their breeding season begins in late March with a peak in April and lasts until July. Pairs are monogamous and may produce two broods in a year. They excavate nest cavities in trees, such as cottonwood, willow, mesquite, as well as saguaro. Nests, which are reused each spring, are vigorously defended against interlopers such as elf owls, cactus wrens, flycatchers, kestrels, and starlings. They maintain spare cavities for roosting during the heat of summer. They are year-round residents.

Major threats to Gila woodpecker are loss of habitat to agricultural development, urbanization, and tamarisk infestation and competition with European starling for nest sites.

The Gila woodpecker is State-listed as an Endangered Species.

Vermilion flycatcher (*Pyrocephalus rubinus*)

Vermilion flycatchers are small flycatchers with the male having a brilliant vermilion-colored front and head. They live in large riparian areas with a high canopy and grassland under-story. They are sometimes found in parks and golf courses that have this same structure.

They typically perch on outer branches of trees or shrubs or tall herb stalks waiting for insects to fly by and then sallying out to catch them in mid-air. They frequently perch above water. Their diet consists almost entirely of flying insects.

Vermilion flycatchers are monogamous, and both parents care for the young. They build a cup nest at mid-story below the canopy. In the Planning Area, they nest regularly at Lake Tamarisk golf course and the residential area at Iron Mountain Pumping Plant (Map 3-4d Appendix A). Just outside the Planning Area, they nest in Covington Park in Morongo Valley and along the Colorado River near Blythe. They have been largely extirpated from former breeding areas in the Imperial and Coachella Valleys.

Habitat loss is the primary reason for declines in California. Nest parasitism by cowbirds may be a factor, also.

Vermilion flycatcher is a State Species of Special Concern.

Willow flycatcher (*Empidonax traillii*) and Southwestern willow flycatcher (*Empidonax traillii extimis*)

Willow flycatchers are found throughout most of the U.S. The southwestern subspecies nests in southern California, Arizona, New Mexico, western Texas, and northwestern Mexico. Little is known about migration or wintering in the NECO Planning Area.

Willow flycatchers nest in thickets in riparian habitats with willows, arrowweed, baccharis, or tamarisk; they are not known to nest in the NECO Planning Area. They probably migrate through the Planning Area in small numbers to and from nesting areas in the Sierras. If so, they probably rest at springs and seeps or other riparian areas in the desert. Some willow flycatchers spend the winter in the Imperial Valley and perhaps also in the NECO Planning Area. It is not known which, if any, of the subspecies migrates through or winters in the desert.

Willow flycatchers are a small, rare, insectivorous bird of riparian woodlands. There are four subspecies in the U.S. The species is difficult to identify, so records may not reflect its actual abundance.

Willow flycatchers capture flying insects by making short sallies from an exposed perch. They typically forage in willow thickets or adjacent wetlands or riparian habitat, but today they are relegated to marginal riparian areas with exotic plants as dominants.

Southwestern willow flycatchers have declined precipitously throughout the southwest. Major causes for decline are the loss of riparian habitat to urbanization, agriculture, and tamarisk infestation. On the breeding grounds, brood parasitism by cowbirds is common.

The Southwestern willow flycatcher is a federally Endangered Species, and the willow flycatcher is a State-listed Endangered Species.

Bendire's Thrasher (*Toxostoma bendirei*)

Bendire's thrashers arrive in the breeding area from late March to early April. Some leave the breeding grounds by the end of July with others departing through August. They migrate to southern Arizona, southwestern New Mexico, or Mexico for the winter. Wintering individuals have also been observed at the Salton Sea, coastal California, Bard, and Lancaster.

The largest breeding area in California lies just east of Essex from the south side of the Piute Mountains to the center of the Old Woman mountains. It is disjunct from another large breeding area near Cima Dome. The Essex population area lacks Joshua trees, but has dense stands of Mojave yucca and other succulents. There are a few records of Bendire's thrashers from JTNP in the Planning Area.

Bendire's thrashers are medium-sized, migratory songbirds. They are highly localized in desert succulent scrub (especially yuccas, Joshua trees, and columnar cholla) or microphyll woodland with palo verde trees (Map 3-4e Appendix A). Firm, moderately compacted soils (not sandy or rocky) may be an important habitat factor. When startled, Bendire's thrashers flee by flying rather than running for cover as other thrashers do. When they do seek cover, they head for stands of thorny shrubs and cactus.

Bendire's thrashers feed primarily on the ground where they use their bill to peck, probe, and hammer in the soil. The diet is mainly insects and other arthropods, but they will also eat seeds and berries.

Bendire's thrasher is a State Species of Special Concern.

Crissal Thrasher (*Toxostoma crissale*)

Crissal thrashers occur from southwestern Utah, southern Nevada, and southeastern California east to southern New Mexico and southwestern Texas and south into Sonora. They are found along the Colorado River Valley, but elsewhere in California populations are highly local and uncommon (Map 3-4e Appendix A). Crissal thrashers are also found in Milpitas Wash, Indian Wash, and Chuckwalla Bench and in the Chuckwalla Dune Thicket. Inventory data elsewhere are scant. Agricultural and urban development have greatly reduced the distribution in the Coachella and Imperial Valleys.

Crissal thrashers begin breeding activities as early as December, but nesting occurs primarily between February and June. Pairs mate for life and hold their territory year-round. They typically raise two broods in a year, and small family groups may be seen later in the year.

Crissal thrashers are medium-sized, resident songbirds. They occur along streams, rivers, and washes in dense thickets of mesquite, ironwood, catclaw acacia, arrowweed, and willow. Loose soils (not too firm or sandy) suitable for digging up insect prey may be a strong habitat factor.

Crissal thrashers forage on the ground under deep cover. They eat mostly insects, but will also eat snails, small vertebrates, and fruits. They use their long, strongly decurved bill to dig in the soil and to probe the litter for food. This is the shyest of desert thrasher species, and they typically run for cover.

Agricultural development, urbanization, and tamarisk invasion have greatly reduced numbers. The species is highly vulnerable to noise and other disturbances. Crissal thrashers can be parasitized by brown-headed cowbirds, but they will eject cowbird eggs from their nests.

Crissal thrasher is a State Species of Special Concern.

LeConte's Thrasher (*Toxostoma lecontei*)

Le Conte's thrashers are distributed from the Mojave Desert east into southern Utah and northern Arizona, and south into northern Mexico. A disjunct population occurred in the San Joaquin Valley, but most of that range has been lost to agricultural and urban development. Le Conte's thrashers are distributed throughout the Planning Area, but many areas with suitable habitat are unoccupied (Map 3-4e Appendix A).

Le Conte's thrashers are medium-sized, resident songbirds. They inhabit desert flats, washes, sandy alluvial fans, and open shrub-land with alkaline soils. Preferred habitat generally has cholla and saltbush, and there may be associations of creosote bush or Joshua tree. Landscapes are often flat or gently sloping.

Breeding activity begins in late January and continues into early June, with a peak from mid-March to mid-April. They are territorial, and the male actively pursues intruders. Preferred nest sites are in cholla or saltbush. Both sexes incubate and tend the young. They may produce three broods in some years. When startled Le Conte's thrashers run for cover. They are very wary of human presence.

Le Conte's thrashers feed on a variety of insects and other arthropods and occasionally on seeds and small vertebrates. The bulk of its diet is beetles, caterpillars, scorpions, and spiders. They mostly forage on the ground by probing and digging in the soil and litter with their long, strongly decurved bill.

LeConte's thrasher is a State Species of Special Concern.

Yellow warbler (*Dendroica petechia*)

Yellow warblers formerly nested in the Colorado River Valley, but they no longer breed there or elsewhere in the Planning Area. They migrate commonly through the Planning Area near the end of March through mid-April and again in September and October (Map 3-4e Appendix A). These migrants will stop at any size woodland or oases. Regularly spaced woodlands and oasis with open water for drinking are essential for migrants. A few yellow warblers spend the winter in the Planning Area. Found throughout the U.S., populations in the West have experienced severe declines. For example, they have been totally extirpated from the California side of the Colorado River Valley.

Yellow warblers are small, bright yellow, neotropical migrant songbirds. In the desert southwest, yellow warblers prefer riparian habitats dominated by cottonwoods, willows, alders, and other small trees. In the Planning Area, they are found in a variety of desert communities with an overstory, such as microphyll woodlands, mesquite hummocks, desert oases, and riparian woodlands.

Yellow warblers mostly feed on insects and spiders gleaned from the tree and shrub canopy. They also catch insects on the wing and occasionally eat berries.

Yellow warbler is a State Species of Special Concern.

Chuckwalla (*Sauromalus obesus*)

Chuckwallas occur throughout the Mojave and Colorado Deserts in California, Nevada, Utah, Arizona, and Mexico. They are found in appropriate habitat throughout the Planning Area (Map 3-4a Appendix A). Little is known about population size or trends. Primary threats to the species are from overcollecting and destruction of habitat by collectors.

Chuckwallas are large, herbivorous lizards that inhabit rocky outcrops and lava flows. They escape from predators by entering rock crevices and inflating their bodies to wedge themselves firmly into place.

Chuckwallas prefer a variety of annual plants, flowers, and fruits, but commonly climb into shrubs to eat leaves. Feeding is most intense in March and April, but chuckwallas may be active all year in the Planning Area.

Social behavior is complex with large males possessing territories and harems within. Mating occurs from April to June, but reproduction is highly variable based on rainfall and food. They often bask on exposed rocks in the mornings and then forage throughout the day, resting in the shade as required.

The Chuckwalla has no special designations.

Colorado Desert fringe-toed lizard (*Uma notata*)

Colorado Desert fringe-toed lizards are found from northeast San Diego County southward through Imperial County, east to the Colorado River, and south into Baja California. Within the Planning Area they occur only in the extreme south adjacent to the Algodones Dunes (Map 3-4a Appendix A). Little is known about trends in population size or distribution.

Colorado Desert Fringe-toed lizards area medium sized, largely insectivorous lizards restricted to sand dunes with fine sand. They can be difficult to distinguish from other fringe-toed lizards in California. Fringe-toed lizards in general have numerous adaptations for a sand-dwelling lifestyle. The most notable adaptation is the enlarged fringes on the third and fourth toes of the hindfoot that enable them to achieve considerable speeds on the sand surface. Other adaptations for burying under the sand include a countersunk lower jaw, valved nostrils, and a flattened body.

Colorado Desert fringe-toed lizards eat a variety of insects, such as caterpillars, antlion larvae, bugs, grasshoppers, beetles, and ants. They also eat flowers, buds, leaves, and seeds and occasionally other lizards. They probably obtain all their water from their food.

They are active between March and October, with hibernation occurring between November and February. Daily activity patterns are highly temperature dependent. Adults usually mate in May, but will not reproduce if there is little food. Females usually deposit two (ranging from 1-5) eggs per clutch from late May until August. More than one clutch per year may be produced.

Their sandy habitats are fragile and have been heavily impacted by off-road vehicles. Their diving-under-sand escape response makes them particularly vulnerable to injury from off-road vehicles. Potential indirect impacts on habitat are associated with the disruption of ecosystem processes involving sand sources, wind transport, and sand corridors.

Colorado Desert fringe-toed lizard is a State Species of Special Concern.

Mojave fringe-toed lizard (*Uma scoparia*)

Mojave fringe-toed lizards are found only in California and a small area of western Arizona, where they are restricted to dune habitats in the deserts of Los Angeles, Riverside, and San Bernardino Counties in California and La Paz County in Arizona. In the Planning Area they are known from the following areas:

Bristol Dry Lake, Cadiz Dry Lake, Dale Dry Lake, Rice Valley, Pinto Basin, Palen Dry Lake, and Ford Dry Lake (Map 3-4a Appendix A). There is no information on population trends.
They are restricted to areas with fine sand including both large and small dunes, margins of dry lakebeds and washes, and isolated pockets against hillsides.

Mojave fringe-toed lizards are also a medium sized, omnivorous lizards restricted to sand dunes with fine sand. They are distinguishable from all other species of fringe-toed lizards by the presence of crescent-shaped markings on the throat. Adaptations and behaviors for living in sand dunes are similar to those described for the Colorado Desert fringe-toed lizard.

Mojave Fringe-toed lizards are omnivorous, feeding on dried seeds, flowers, grasses, leaves, insects, and scorpions. Food preference shifts seasonally according to availability.

Impacts are similar to those described for the Colorado Desert fringe-toed lizard.

Mojave fringe-toed lizard is a State Species of Special Concern.

Flat-tailed horned lizard (*Phrynosoma mcallii*)

Flat-tailed horned lizards occur throughout the southern portion of the Colorado Desert from the Coachella Valley southward and eastward into Arizona and south into neighboring Sonora. Large portions of the historic range have been lost to inundation of the Salton Sea, urbanization, and agricultural development. Within the Planning Area, suitable habitat occurs only along the southern edge (Map 3-4a Appendix A). The subpopulation that occurs in the Planning Area is not in any of five Management Areas designated as part of an overall strategy to conserve the species. Despite considerable effort over the past 15 years, population sizes and trends are unknown due to difficulties in finding an effective population estimation procedure.

Flat-tailed horned lizards, like other horned lizards, have a flattened body shape with horns along the sides in rows and on the head. They are distinguishable from other horned lizards by a dark stripe down the back. They are extremely cryptic, blending into the soil of whatever color. They generally occur on sandy flats, hills, and badlands usually with creosote bush.

They feed almost exclusively on harvester ants, obtaining water from their prey. They forage actively or wait along ant trails or nest entrances.

Adults hibernate through the winter usually from mid-November to mid-February. Juveniles are active during most of the winter allowing them to continue growing to reproductive maturity. Females lay comparatively (to other horned lizards) small clutches of three to ten eggs in May. In favorable years they may deposit a second clutch in late summer. During the active season, flat-tailed horned lizards spend the night in shallow burrows or on the surface. During the day they may seek shelter in a burrow, under vegetation, or by wiggling below the soil surface.

Flat-tailed horned lizards use cryptic coloration and freezing to avoid danger. Sometimes they quickly bury themselves in loose soil by wiggling in a side-to-side movement.

The flat-tailed horned lizard is a BLM California Sensitive Species and a State Species of Special Concern.

Desert rosy boa (*Lichanura trivirgata*)

Although widely distributed, rosy boas are uncommon throughout their range. Desert rosy boas are found only in southeastern California and southeastern Arizona (Map 3-4e Appendix A). The most significant threats are from overcollection for the pet trade and the destruction of habitat by collectors.
Desert rosy boas are medium sized snakes. They prefer a mixture of brushy cover and rocky soil, such as

is found in desert canyons, washes, and mountains. Although not requiring water, they are often found near oases and permanent or intermittent streams.

The diet of rosy boas consists of small mammals and birds, which are killed by constriction. They forage over a wide area. When threatened, they may roll into a ball and hide their head among the coils.

Rosy boas are live-bearers of 3-12 young that are born in October or November. They are primarily nocturnal, but may be out in the evening or morning in the spring and may appear during the day. Most activity occurs in late spring to early or mid-summer. They hibernate in winter.

Desert rosy boa has no special designation.

Desert tortoise (*Gopherus agassizii*)
Desert tortoises are widely distributed in the desert: from as far north as Olancha south to the Mexican border and from the Colorado River west to near Lancaster. The Desert Tortoise (Mojave Population) Recovery Plan shows two major populations or *recovery units* in the Planning Area. These are the Northern Colorado Desert and Eastern Colorado Desert Recovery Units. The highest densities of tortoises are in Chemehuevi and Ward Valleys, on Chuckwalla Bench, and in JTNP. The USFWS has designated *critical habitat* for the desert tortoise (Map 3-5 Appendix A). Populations have declined precipitously in some parts of the range, such as Chuckwalla Bench. Causes for declines include habitat loss, diseases, excessive predation on young tortoises by ravens, collecting, shooting, highway and vehicle kills, and other factors.

Desert tortoises are found in a variety of habitats including desert scrub, Joshua tree woodland, and alkali desert scrub habitats. In California, the highest density populations occur in the creosotebush scrub habitat. They are most prevalent at elevations of about 1500 to 3000 feet.

Desert tortoises are the largest reptile found in the California desert; adults can grow to over 14 inches in length. When frightened, they withdraw almost completely within their shell, and most exposed surfaces are protected by tough skin or strong well developed scales.

Desert tortoises are herbivores and begin feeding shortly after they emerge from hibernation burrows in the spring. They eat primarily annual forbs, but perennial plants such as cacti and grasses are also important food items. Succulent plants are preferred and are an important source of water. As the season progresses succulent plants become less common, and tortoises begin eating more dried material. Another feeding period typically occurs in the fall after a short summer estivation underground.

Most tortoises do not begin breeding activities until 12-20 years old. Soon after they emerge from hibernation in the spring, male tortoises begin searching for mates, and breeding occurs soon after. Most eggs are laid in the late spring or fall typically at the mouth of a burrow. They hatch in about 90-120 days. Desert tortoises lay from 1 to 3 clutches of eggs per year.

The desert tortoise is a Federal Threatened Species (Mojave Population only) and State-listed Threatened Species.

Couch's spadefoot toad (*Scaphiopus couchi*)
The range of Couch's spadefoot extends from extreme southeastern California eastward through Arizona, New Mexico, Texas, and Oklahoma and southward into Mexico. In California, they occur in the Planning Area from Chemehuevi Wash south to the Ogilby area in Imperial County (Map 3-4a Appendix A).

Couch's spadefoot toads occur in a variety of vegetation types, including desert dry wash woodland, creosote bush scrub, and alkali sink scrub. The soil must be loose enough for the construction of burrows and capable of sustaining temporary ponds after summer thundershowers.

Couch's spadefoot toads are burrowing amphibians that spends the vast majority of their lives underground. A black, cornified, teardrop-shaped spade found on each hindfoot is used for digging.

Couch's spadefoot toads are present on the surface for less than one month during years when there has been sufficient rainfall to allow for runoff ponds to form. They emerge and congregate at ponds, mate, lay eggs, eat, and perform all life sustaining functions within a brief period. They eat a variety of arthropods, such as termites, beetles, ants, grasshoppers, solpugids, scorpions, and centipedes. They are capable of surviving a year on a single, large meal of termites. Tadpoles are occasionally cannibalistic, but eat mostly invertebrates. If temperatures are right, eggs may hatch in less than a day, and tadpoles may metamorphose in as few as 7 days. Adults and young toads then go underground again for 10-11 months.

The population size is unknown. This species is of concern because 1) it has a small range in California; 2) populations are declining in other states; 3) it has a precarious life history; and 4) the capability of sites to impound runoff is easily destroyed. Road construction has created some pond habitat in Imperial County, but these are often subject to off-highway vehicle driving which can destroy soil impoundment capability. In addition to habitat disturbance, vehicles create noise similar to rainfall, resulting in emergence when conditions are not favorable. Vehicles may also crush vegetative debris which is essential as daytime cover.

The Couch's spadefoot toad is a State Species of Special Concern.

Table N-1. All Alternatives. Acres and percent of total of the range (number of known sites for species indicated) of each special status plants within JTNP, CMAGR, and BLM wilderness.

Special status plant	JTNP	CMAGR	BLM Wilderness
Angel trumpet			868 (41)
Harwood's rattleweed			3,096 (43)
Borrego milkvetch			
Coachella Valley milkvetch	1 site (33)		
Red grama			14,542 (91)
Fairyduster		60,383 (13)	77,342 (16)
Saguaro			8 sites (80)
Crucifixion thorn	491 (<1)	494 (<1)	27,740 (15)
Los Animas colubrina	65,301 (17)	26,527 (7)	127,135 (34)
Spiny abrojo		164,746 (25)	50,811 (7)
Wiggins'croton			
Winged cryptantha			
California ditaxis	78,608 (34)		52,428 (22)
Glandular ditaxis			944 (16)
Howe's hedgehog cactus			169 (37)
Foxtail cactus	489,172 (12)		1,392,949 (33)
Crown-of-thorns		90,263 (94)	1,536 (2)
Spearleaf	1,825 (1)	35,801 (24)	43,254 (29)
Robison's monardella			4,427 (93)
Munz' cholla		286,274 (86)	2,847 (1)
Wiggins' cholla			
Giant Spanish-needle			
White-margined beardtongue			
Sand food			
Arizona pholistoma			65,818 (69)
Lobed ground-cherry	4,785 (7)		13,722 (21)
Desert unicorn plant	3,222 (<1)	197,357 (7)	840,431 (31)
Orocopia sage		32,470 (29)	53,186 (47)
Coues' cassia		49 (<1)	61,143 (64)
Mesquite nest straw			
Jackass clover			39 (<1)
Mecca-aster			19,489 (78)

Table N-2. No Action Alternative. Acres and percent of total of the range (number of known sites for species indicated) of each special status plant within each BLM Multiple-Use Class: Controlled (C), Limited (L), Moderate (M), and Intensive (I), and Unclassified lands.

Special status plant	MUC C	MUC L	MUC M	MUC I	Unclassified
Angel trumpet			869 (41)		396 (19)
Harwood's rattleweed	30 (<1)	1748 (24)	293 (4)		2,000 (28)
Borrego milkvetch		1 Site (25)	3 Sites 75)		
Coachella Valley milkvetch		2 Sites (66)			
Red grama	1,472 (9)				
Fairyduster	628 (1)	157,600 (33)	173,578 (37)	41 (<1)	
Saguaro	8 sites (80)	1 site (10)	1 site (10)		
Criucifixion thorn	1,705 (1)	103,331 (57)	46,769 (26)		
Los Animas colubrina	68,104 (17)	122,039 (32)	16,037 (4)	19,401 (5)	
Spiny abrojo	637 (<1)	279,124 (41)	177,304 (26)		
Wiggins'croton			3,932 (95)	192 (5)	
Winged cryptantha			1 site (100)		
California ditaxis	80,343 (35)	29,040 (13)	72,889 (31)	843 (<1)	
Glandular ditaxis		3,501 (58)	2,000 (33)		
Howe's hedgehog cactus			293 (63)		
Foxtail cactus	505,775 (12)	1,023,507 (25)	1,150,257 (27)	83,321 (2)	51,257 (1)
Crown-of-thorns		1,147 (1)	2,535 (3)		
Spearleaf	2,966 (2)	64,239 (43)	2,909 (2)		
Robison's monardella		310 (7)			
Munz' cholla		37,339 (11)	5,001 (2)		8 (<1)
Wiggins' cholla					2 sites (100)
Giant Spanish-needle			3,932 (95)	192 (5)	
White-margined beardtongue		2 sites (100)			
Sand food			3,932 (95)	192 (5)	
Arizona pholistoma	3,305 (4)	25,351 (27)	1,872 (2)		
Lobed ground-cherry	5,048 (7)	5,784 (9)	41,409 (63)		
Desert unicorn plant	18,982 (1)	841,611 (31)	695,499 (26)		96,217 (4)
Orocopia sage	1,379 (1)	16,457 (15)	7,751 (7)		49 (<1)
Coues' cassia	1,902 (2)	23,698 (25)	8,124 (8)		
Mesquite nest straw			3,670 (100)		
Jackass clover	216 (1)	8,131 (27)	21,524 (72)		
Mecca-aster	250 (1)	606 (2)	5,174 (21)		240 (1)

Table N-3. No Action Alternative. Acres and percent of total of the range (number of known sites for species indicated) of each special status plant within four BLM grazing allotments: Lazy Daisy Cattle, Chemehuevi Cattle, Rice Valley Sheep, and Ford Dry Lake Sheep.

Special status plant	Lazy Daisy Cattle	Chemehuevi Cattle	Rice Valley Sheep	Ford Dry Lake Sheep
Angel trumpet				
Harwood's rattleweed				
Borrego milkvetch				
Coachella Valley milkvetch				
Red grama				
Fairyduster				
Saguaro				
Crucifixion thorn	28,138 (15)	85,370 (46)		
Los Animas colubrina				12 (<1)
Spiny abrojo				
Wiggins' croton				
Winged cryptantha				
California ditaxis				
Glandular ditaxis		1,661 (21)		
Howe's hedgehog cactus				
Foxtail cactus	332,886 (8)	135,595 (3)	85,55 (2)	49,681 (1)
Crown-of-thorns				
Spearleaf				
Robison's monardella				
Munz' cholla				
Wiggins' cholla				
Giant Spanish-needle				
White-margined beardtongue				
Sand food				
Arizona pholistoma		1,799 (2)		
Lobed ground-cherry	28,947 (41)			
Desert unicorn plant	5 (<1)	135,595 (5)	85,565 (3)	49,681 (2)
Orocopia sage				
Coues' cassia				
Mesquite nest straw				
Jackass clover				270 (1)
Mecca-aster				

Table N-4. All Alternative. Acres and percent of range of each special status animal within JTNP, CMAGR, and BLM wilderness areas.

Special Status Animal	JTNP	CMAGR	BLM Wilderness
Burro deer	40,113 (6)	131,824 (21)	68,551 (11)
California leaf-nosed bat	367,951 (9)	413,629 (10)	1,219,238 (29)
Occult little brown bat			347,313 (28)
Cave myotis			347,313 (28)
Fringed myotis	50,023 (2)		920,797 (43)
Pallid bat	409,253 (9)	453,750 (9)	1,553,070 (30)
Townsend's big-eared bat	474,842 (9)	399,600 (8)	1,531,435 (30)
Pocketed free-tailed bat	293,390 (15)	205,955 (11)	894,231 (46)
Western mastiff bat	293,390 (15)	205,955 (11)	894,231 (46)
Mountain lion	192,480 (6)	459,558 (15)	701,904 (23)
Colorado Valley woodrat	4,733 (<1)	459,581 (19)	560,128 (23)
Mountain plover			
Ferruginous hawk	489,253 (9)	459,581 (8)	1,586,393 (29)
Golden eagle	489,253 (9)	459,581 (8)	1,586,393 (29)
Prairie falcon	488,788 (9)	459,529 (9)	1,424,436 (28)
Elf owl	540 (<1)		71,904 (66)
Burrowing owl	489,253 (9)	459,581 (8)	1,586,393 (29)
Gila woodpecker			3,479 (4)
Vermilion flycatcher			48,317 (19)
Bendire's thrasher	219,074 (34)		139,390 (21)
Crissal thrasher	82 (<1)		199,304 (41)
LeConte's thrasher	244,555 (7)	297,969 (8)	834,714 (22
Yellow warbler			1,216 (3)
Chuckwalla	289,351 (10)	284,288 (10)	1,061,403 (38)
Colorado Desert fringe-toed lizard			
Mojave fringe-toed lizard	246,875 (9)		836,167 (29)
Flat-tailed horned lizard			
Desert rosy boa	485,698 (9)	459,579 (9)	1,570,953 (29)
Couch's spadefoot toad		351,516 (16)	428,837 (20)

Table N-5. All Alternatives. Acres and percent of range of each special status animal within BLM utility corridors.

Special Status Animal	Utility Corridor
Burro deer	92,683 (15)
California leaf-nosed bat	571,980 (14)
Occult little brown bat	267,324 (21)
Cave myotis	267,324 (21)
Fringed myotis	276,781 (13)
Pallid bat	664,443 (13)
Townsend's big-eared bat	669,134 (13)
Pocketed free-tailed bat	86,145 (4)
Western mastiff bat	86,415 (4)
Mountain lion	391,710 (13)
Colorado Valley woodrat	345,565 (14)
Mountain plover	20,249 (12)
Ferruginous hawk	730,917 (13)
Golden eagle	730,817 (13)
Prairie falcon	660, 950 (13)
Elf owl	3,873 (4)
Burrowing owl	730,817 (13)
Gila Woodpecker	61,390 (25)
Vermilion flycatcher	83,382 (13)
Bendire's thrasher	83,382 (13)
Crissal thrasher	97,095 (20)
LeConte's thrasher	597,094 (16)
Yellow warbler	16,936 (38)
Chuckwalla	229,796 (8)
Colorado Desert fringe-toed lizard	2,045 (52)
Mojave fringe-toed lizard	410,333 (14)
Flat-tailed horned lizard	15,647 (73)
Desert rosy boa	705,155 (13)
Couch's spadefoot toad	292,486 (14)

Table N-6. No Action Alternative. Acres and percent of range of each special status animal within four livestock BLM livestock grazing allotments.

Special Status Animal	Lazy Daisy Cattle	Chemehuevi Cattle	Rice Valley Sheep	Ford Dry Lake Sheep
Burro deer	5,462 (1)	6,317 (1)	8,110 (1)	5,355 (1)
California leaf-nosed bat	188,558 (5)	128,005 (3)	73,553 (2)	35,014 (1)
Occult little brown bat		110,571 (9)		
Cave myotis		110,571 (9)		
Fringed myotis	332,886 (16)	135,595 (6)		
Pallid bat	331,238 (6)	110,018 (2)	58,021 (1)	37,657 (1)
Townsend's big-eared bat	320,947 (6)	130,908 (3)	76,352 (2)	33,700 (1)
Pocketed free-tailed bat	125,644 (6)	2,643 (<1)	195 (<1)	13 (<1)
Western mastiff bat	125,644 (6)	2,643 (<1)	195 (<1)	13 (<1)
Mountain lion		18,597 (1)	30,570 (1)	44,196 (2)
Colorado Valley woodrat		50 (<1)	19,875 (1)	49,681 (2)
Mountain plover				5,269 (3)
Ferruginous hawk	332,886 (6)	135,595 (2)	85,565 (2)	49,681 (1)
Golden eagle	332,886 (6)	135,595 (2)	85,565 (2)	49,681 (1)
Prairie falcon	332,886 (6)	132,270 (3)	85,565 (2)	49,681 (1)
Elf owl		2,076 (2)		
Burrowing owl	332,886 (6)	135,595 (2)	85,565 (2)	49,681 (1)
Gila woodpecker		2,495 (3)		
Vermilion flycatcher				
Bendire's thrasher	120,733 (19)	84,454 (13)		
Crissal thrasher		12,159 (3)		
LeConte's thrasher	243,170 (7)	113,218 (3)	85,014 (2)	49,669 (1)
Yellow warbler		345 (1)		
Chuckwalla	127,107 (5)	75,227 (3)	8,719 (<1)	5,021 (<1)
Colorado Desert fringe-				
Mojave fringe-toed lizard	166,577 (6)	100,421 (4)	85,515 (3)	49,669 (2)
Flat-tailed horned lizard				
Desert rosy boa	329,019 (6)	135,595 (3)	74,595 (1)	39,201 (1)
Couch's spadefoot toad		120,735 (6)	47,532 (2)	31,150 (1)

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Table N-7. Acreage and the percent of range of each special status animal within the burro herd management areas.

Special Status Animal	Preferred/Large DWMA Alternative Chemhuevi HMA	Preferred/Large DWMA Alternative Chocolate-Mule Mountain HA/HMA
Burro deer	1,140 (<1)	13,902 (2)
California leaf-nosed bat	105,282 (2)	151,079 (4)
Occult little brown bat	111,652 (9)	202,492 (16)
Cave myotis	111,652 (9)	202,492 (16)
Fringed myotis	90,308 (4)	0
Pallid bat	110,819 (2)	202,492 (4)
Townsend's big-eared bat	111,652 (2)	202,492 (4)
Pocketed free-tailed bat	68,462 (4)	129,793 (7)
Western mastiff bat	68,462 (4)	129,793 (7)
Mountain lion	101,412 (3)	202,492 (7)
Colorado Valley woodrat	89,818 (4)	202,492 (8)
Mountain plover	0	0
Ferruginous hawk	111,652 (2)	202,492 (4)
Golden eagle	111,652 (2)	202,492 (4)
Prairie falcon	67,148 (1)	116,436 (2)
Elf owl	68,462 (63)	5,241 (5)
Burrowing owl	111,652 (2)	202,492 (4)
Gila woodpecker	1,143 (1)	12,432 (13)
Vermilion flycatcher	0	0
Bendire's thrasher	908 (<1)	0
Crissal thrasher	55,127 (11)	119,597 (24)
LeConte's thrasher	22,386 (1)	70,868 (2)
Yellow warbler	781 (2)	5,928 (13)
Chuckwalla	101,696 (4)	188,658 (7)
Colorado Desert fringe-toed lizard	0	0
Mojave fringe-toed lizard	78,429 (3)	0
Flat-tailed horned lizard	0	0
Desert rosy boa	111,652 (2)	202,492 (4)
Couch's spadefoot toad	106,942 (5)	202,531 (9)

Table N-8. Preferred/Large DWMA Alternative. Acres and percent of range of each special status animals within the large DWMAs, Multi-species WHMA, and conservation zone.

Special Status Animal	DWMAs	Multi-species WHMA	Conservation zone
Burro deer	303,642 (48)	73,352 (12)	513,297 (81)
California leaf-nosed bat	1,291,171 (31)	402,080 (10)	3,224,558 (77)
Occult little brown bat	214,315 (17)	184,859 (15)	728,582 (58)
Cave myotis	214,315 (17)	184,859 (15)	728,582 (58)
Fringed myotis	831,112 (39)	154,368 (7)	1,649,352, (77)
Pallid bat	1,606,983 (31)	486,187 (9)	3,944,952 (76)
Townsend's big-eared bat	1,540,602 (30)	497,905 (10)	3,863,242 (75)
Pocketed free-tailed bat	457,567 (23)	102,432 (5)	1,660,526 (85)
Western mastiff bat	457,567 (23)	102,432 (5)	1,660,526 (85)
Mountain lion	838,096 (28)	324,075 (11)	2,164,855 (72)
Colorado Valley woodrat	789,319 (32)	260,981 (11)	1,727,468 (71)
Mountain plover	1,276 (1)	86,586 (53)	87,862 (54)
Ferruginous hawk	1,684,893 (30)	537,474 (10)	4,101,826 (74)
Golden eagle	1,684,893 (30)	537,474 (10)	4,101,826 (74)
Prairie falcon	1,675,471 (32)	513,747 (10)	3,908,004 (75)
Elf owl	30,270 (28)	5,133 (5)	97,903 (89)
Burrowing owl	1,684,893 (30)	537,474 (10)	4,101,826 (74)
Gila woodpecker	30,151 (32)	37,863 (41)	71,156 (77)
Vermilion flycatcher		50,278 (20)	98,577 (40)
Bendire's thrasher	272,200 (42)		590,609 (90)
Crissal thrasher	15,937 (3)	70,025 (14)	283,274 (58)
LeConte's thrasher	1,294,512 (35)	458,359 (12)	2,710,761 (73)
Yellow warbler	7,141 (16)	21,837 (49)	30,193 (68)
Chuckwalla	870,417 (31)	175,100 (6)	2,240,497 (80)
Colorado Desert fringe-toed lizard		3,905 (98)	3,905 (98)
Mojave fringe-toed lizard	765,204 (26)	376,885 (13)	1,989,552 (69)
Flat-tailed horned lizard		4,127 (19)	4,127 (19)
Desert rosy boa	1,676,985 (31)	422,418 (8)	3,960,332 (74)
Couch's spadefoot toad	680,859 (32)	242,663 (11)	1,492,695 (69)

Table N-9. No Action and Preferred/Large DWMA Alternatives. Average number of miles of road (not including navigable washes) per square mile in the range of each special status animal.

Special Status Animal	Mi. of road/mi.^{2}
Burro deer	.947
California leaf-nosed bat	.624
Occult little brown bat	.813
Cave myotis	.813
Fringed myotis	.519
Pallid bat	.601
Townsend's big-eared bat	.616
Pocketed free-tailed bat	.251
Western mastiff bat	.251
Mountain lion	.642
Colorado Valley woodrat	.725
Mountain plover	.433
Ferruginous hawk	.609
Golden eagle	.609
Prairie falcon	.600
Elf owl	.463
Burrowing owl	.609
Gila woodpecker	1.381
Vermilion flycatcher	.794
Bendire's thrasher	.486
Crissal thrasher	.764
LeConte's thrasher	.768
Yellow warbler	1.469
Chuckwalla	.404
Colorado Desert fringe-toed lizard	.269
Mojave fringe-toed lizard	.661
Flat-tailed horned lizard	.588
Desert rosy boa	.613
Couch's spadefoot toad	.689

Table N-10. Preferred/Large DWMA Alternative. Acres and percent of range of each special status animal in the areas where all navigable washes are open to vehicles.

Special Status Animal	Open washes
Burro deer	163,372 (26)
California leaf-nosed bat	464,406 (11)
Occult little brown bat	100,064 (8)
Cave myotis	100,064 (8)
Fringed myotis	192,522 (9)
Pallid bat	546,292 (11)
Townsend's big-eared bat	541,776 (11)
Pocketed free-tailed bat	123,981 (6)
Western mastiff bat	123,981 (6)
Mountain lion	381,856 (13)
Colorado Valley woodrat	359,830 (15)
Mountain plover	133 (< 1)
Ferruginous hawk	574,898 (10)
Golden eagle	574,898 (10)
Prairie falcon	574,898 (10)
Elf owl	15,120 (14)
Burrowing owl	574,898 (10)
Gila woodpecker	27,733 (30)
Vermilion flycatcher	0
Bendire's thrasher	93,193 (14)
Crissal thrasher	5,209 (1)
LeConte's thrasher	458,526 (12)
Yellow warbler	7,136 (26)
Chuckwalla	271,173 (10)
Colorado Desert fringe-toed lizard	
Mojave fringe-toed lizard	237,261 (8)
Flat-tailed horned lizard	
Desert tortoise	568,887 (11)
Couch's spadefoot toad	337,776 (16)

Table N-11. Small DWMA A Alternative. Acres and percent of range of each special status animal within the small DWMAs, Multi-species WHMA, and conservation zone.

Special Status Animal	small DWMAs	Multi-species WHMA	Conservation zone
Burro deer	183,438 (29)	194,278 (31)	516,716 (81)
California leaf-nosed bat	1,056,014 (25)	624,995 (15)	3,252,178 (77)
Occult little brown bat	183,552 (15)	209,620 (17)	728,510 (58)
Cave myotis	183,552 (15)	209,620 (17)	728,510 (58)
Fringed myotis	696,600 (33)	242,675 (11)	1,649,887 (77)
Pallid bat	1,318,663 (25)	740,491 (14)	3,972,852 (77)
Townsend's big-eared bat	1,254,336 (24)	752,499 (15)	3,891,307 (76)
Pocketed free-tailed bat	397,450 (20)	148,283 (8)	1,665,395 (86)
Western mastiff bat	397,450 (20)	148,283 (8)	1,665,395 (86)
Mountain lion	652,160 (22)	502,430 (17)	2,171,462 (72)
Colorado Valley woodrat	622,166 (26)	439,743 (18)	1,753,846 (72)
Mountain plover	1,276 (1)	86,586 (53)	87,862 (54)
Ferruginous hawk	1,384,216 (25)	803,976 (15)	4,129,727 (74)
Golden eagle	1,384,216 (25)	803,976 (15)	4,129,727 (74)
Prairie falcon	1,374,793 (27)	780,402 (15)	3,935,903 (76)
Elf owl	30,264 (28)	5,157 (5)	97,920 (89)
Burrowing owl	1,384,216 (25)	803,976 (15)	4,129,727 (74)
Gila woodpecker	2,608 (3)	65,358 (70)	71,175 (77)
Vermilion flycatcher	76 (<1)	50,186 (20)	98,577 (40)
Bendire's thrasher	210,305 (32)	32,274 (5)	590,970 (90)
Crissal thrasher	10,414 (2)	74,609 (15)	283,215 (58)
LeConte's thrasher	1,042,711 (28)	685,335 (18)	2,735,798 (74)
Yellow warbler		28,995 (66)	30,211 (68)
Chuckwalla	728,996 (26)	292,296 (10)	2,245,281 (80)
Colorado Desert fringe-toed lizard		3,906 (98)	3,906 (98)
Mojave fringe-toed lizard	666,738 (23)	449,005 (16)	1,992,348 (69)
Flat-tailed horned lizard		4,128 (19)	4,128 (19)
Desert rosy boa	1,379,546 (26)	685,795 (13)	3,988,232 (74)
Couch's spadefoot toad	489,832 (23)	421,508 (20)	1,491,024 (69)

Table N-12. Acres and percent of range of special status species plants within large DWMAs, Multi-species WHMAs, and the total of Conservation Zone (sightings points used in absence of predicted range)

Special status plant	DWMAs	Multi-Species WHMA	Conservation Zone
Angel trumpet	0	587 (28)	1,824 (87)
Harwood's rattleweed	3,999 (56)	234 (3)	4,233 (59)
Borrego milkvetch	0	1 points (25)	3 points (75)
Coachella Valley milkvetch	0	3 points (50)	4 points (67)
Red grama	1,984 (12)	0	15,997 (100)
Fairyduster	68,136 (14)	90,528 (19)	352,009 (74)
Saguaro	1 point (8)	1 point (8)	10 points (83)
Crucifixion thorn	176,004 (98)	935 (1)	179,536 (100)
Los Animas colubrina	232,888 (61)	0	377,209 (99)
Spiny abrojo	391,063 (58)	84,058 (12)	577,275 (70)
Wiggins'croton	0	4,059 (99)	4,059 (99)
Winged cryptantha	0	0	1 point (50)
California ditaxis	137,792 (59)	0	221,641 (95)
Glandular ditaxis	3,956 (66)	0	3,956 (66)
Howe's hedgehog cactus	0	0	165 (36)
Foxtail cactus	1,213,808 (29)	412,767 (10)	3,423,587 (82)
Crown-of-thorns	69,081 (71)	0	96,979 (100)
Spearleaf	140,947 (94)	0	148,494 (99)
Robison's monardella	0	0	4,722 (98)
Munz' cholla	175,312 (52)	0	333,207 (99)
Wiggins' cholla	0	0	0
Giant Spanish-needle	0	4,059 (99)	4,059 (99)
White-margined beardtongue	0	0	0
Sand food	0	4,059 (99)	4,059 (99)
Arizona pholistoma	23,296 (25)	0	94,722 (100)
Lobed ground-cherry	51,624 (78)	0	65,902 (100)
Desert unicorn plant	1,025,543 (38)	338,776 (13)	2,147,928 (80)
Orocopia sage	48,050 (43)	0	110,860 (99)
Coves' cassia	71,751 (75)	0	94,664 (99)
Mesquite nest straw	3,421 (93)	0	3,421 (93)
Jackass clover	0	29,573 (99)	29,573 (99)
Mecca-aster	784 (3)	0	23,534 (97)

Appendix O
Perspectives on Proposals for and Changes to Management Areas

The amount of land involved in plan proposals and changes to current management is indicated in various places in the chapters. However, the following statistical information is not and may be useful in discussing and analyzing the plan proposals and impacts.

The following are common to the tables

1. NA = No Action Alternative
2. P = Preferred/Large DWMA Alternative
3. A = Small DWMA A Alternative
4. B = Small DWMA B Alternative

Agency acronyms are used.

Table O-1 Percent and acres of total planning area expressed in general land uses for BLM, JTNP and CMAGR - by alternative

Agency Management Areas	Alternative			
	No Action	Preferred	Small DWMA A	Small DWMA B
BLM - MUCs				
C (Wilderness)	29/1,601,740**	29/1,584,545	29/1,584,545	29/1,584,545
L*	25/1,386,395	32/1,797,339	31/1,712,275	31/1,712,275
M*	25/1,398,912	19/1,022,980	20/1,108,043	20/1,108,043
I	2/83,466	1/62,909	1/62,909	1/62,909
Unclassified	2/126,374	2/130,349	2/130,349	2/130,349
JTNP	9/489,253	9/489,253	9/489,253	9/489,253
CMAGR				
Target areas	<1/2,813	<1/2,813	<1/2,813	<1/2,813
Non-target area	8/456,766	8/456,766	8/456,766	8/456,766

* MUC M is changed to MUC L in DWMAs

Table O-2 Percent and acres of total planning area expressed in general conservation zones - by alternative

Conservation Zones	Alternative			
	No Action**	Preferred	Small DWMA A	Small DWMA B
Restricted Areas*	46/2,535,005	46/2,535,005	46/2,535,005	46/2,535,005
DWMAs (outside above)	21/1,180,991	19/1,054,227	14/785,234	14/785,234
WHMAs (outside above)	2/110,362	17/972,359	22/1,240,530	19/1,061,251
Remaining areas from all above to equal 100%	31/1,721,308	18/986,074	18/986,896	21/1,166,175

* Restricted Areas = JTNP, CMAGR, BLM wilderness

** In the No Action Alternative, Critical Habitat and existing HMP areas are used in place of DWMAs and WHMAs, respectively.

Table O-3 Percent and acres of distribution of BLM MUCs in WHMAs (BLM land only) and Remaining Areas (from Table 2). Each group = 100%.

[illegible]	[illegible]	[illegible]	[illegible]
WHMAs - Multi-Species & Bighorn Sheep			
MUC C (incl Bighorn Sheep, only)	37/1,107,331	36/1,107,762	38/1,107,657
MUC L	26/772,527	28/862,723	28/811,920
MUC M	15/442,085	17/528,889	15/427,866
MUC I	2/61,996	2/61,996	1/41,250
Remaining Areas			
MUC L	29/287,257	29/289,767	29/340,540
MUC M	59/579,940	59/578,168	58/679,190
MUC I	<1/913	<1/913	2/21,659

Table O-4 Acres of State Lands Commission to be acquired.

[illegible]	Alternative		
	Preferred	Small DWMA A	[illegible]
DWMAs	39,299	29,053	29,053
Wilderness Outside of DWMAs	26,674	27,937	27,937
Total	65,973	56,990	56,990

Table O-5 Percent of Bighorn Sheep metapopulations by Federal land management agency (including corridors).

Metapopulation	Alternatives: Preferred/Large DWMA, Small DWMA A & B		
	BLM	JTNP	[illegible]
Sonoran	73	0	27
Southern Mojave	82	18	0

Table O-6 Percent of Bighorn Sheep metapopulations on BLM lands by MUC.

MUC	Sonoran Metapopulation		Southern Mojave Metapopulation	
	Preferred	Small A & B	Preferred	Small A & B
C	45	45	58	58
L	44	42	29	28
M	11	13	12	13
I	0	0	<1	<1
Unclassified	<1	.1	<1	<1

Table O-7 Percent of Special Management Areas designated in CDCA Plan (shown on CDCA Plan Map No. 3) included in Conservation Zone - Preferred Alternative.

[illegible]	[illegible]	[illegible]
[illegible]		
56 - Corn Spring (Y)	Habitat (oasis)	100
57 - Chuckwalla Valley Dunes Thicket (Y)	Habitat	100
59 - Chuckwalla Bench (Y)	Desert Tortoise/Habitat	100
Desert Lily Preserve (Y)	Desert Lily	100
Habitat Management Plans (HMPs)		
Bigelow Cholla (N)	Bigelow Cholla	100
Special Management Areas (Y/N - was a management plan developed?)	**Target Species or Habitat**	**% in Conservation Zone**
W35 - Fenner/Chemehuevi Valleys (N) W37 - Chemehuevi Wash (N) W38 - Whipple Mountain (Y) W39 - Vidal Wash (N)	Desert Tortoise, other Habitat	85
No # - Marble Mountain (N)	Bighorn Sheep	45
No # - Sheep Hole Mountains (Y)	Bighorn Sheep	93
W45 - Orocopia Mountains	Bighorn Sheep	85
W46 - Eagle Mountains (N)	Bighorn Sheep	100
W47 - Coxcomb Mountains (N)	Bighorn Sheep	92
W48 - Granite-Palen Mountains (N)	Bighorn Sheep	89
W50 - Rice Valley Dunes (N)	Habitat	99
W51 - McCoy Wash (N)	Habitat	14
W52 - Chuckwalla Bench (N)	Desert Tortoise	100
W53 - Chuckwalla Mtns (Y)	Bighorn Sheep	98
W54 - Ford Dry Lake (N)	Habitat	82
W55 - Milpitas Wash (Y)	Habitat	99
W56 - Palo Verde Mtns (N)	Saguaro Habitat	100
W58 - Indian Wash (N)	Habitat	34
W59 - Algodones Dunes	Habitat	28

Special Attention Areas		
W41 - Cadiz Sand Dunes	Habitat	85
W57 - Picacho Land and Wildlife Management Area	Habitat	90
Special Management Areas (Y/N - was a management plan developed?)	**Target Species or Habitat**	**% in Conservation Zone**
Road Designation Restrictions		
W36 - Stepladder Mtns	Teddy Bear Cholla Thicket	100
W49 - Midland	Ironwood Thicket	80

Appendix P
Boundaries of DWMAs and WHMAs and boundaries of washes are designated as open routes

General

With the sensitive nature and management emphasis placed on Desert Wildlife Management Areas (DWMAs), also designated as ACECs, it is imperative that the public always know where they are and comply with management requirements of these areas. Therefore, boundaries must be well defined - both narratively, on maps, and on the ground. The same need applies to the designation of navigable washes as open on an area basis. Selected boundaries are set to roads or existing restricted areas as much as possible to increase manageability and clarity for the public and are described below. As much information (e.g., road names, mileages, etc) as needed is provide for clarity. Where the boundary is one of the following features, the DWMA boundary is specified as indicated:

- Roads with rights-of-way...the DWMA boundary is the right-of-way boundary that is on the DWMA side of the right-of-way
- Road not contained in a right-of-way...the DWMA boundary is 100 feet from road centerline to the DWMA side of the road
- Park or BLM wilderness boundary (without associated road or other identifiable feature)...the DWMA boundary is the park or wilderness boundary
- Land ownership...the DWMA boundary is a described section/township line
- Current desert tortoise critical habitat...the DWMA boundary is that line (in this case usually inside wilderness or other currently restricted areas where the boundaries for those restricted areas are the more meaningful)
- Roads with six digit numbers (e.g., 690119) are the numbered routes on BLM's routes inventory

Wildlife Habitat Management Areas (WHMAs) boundaries are as delineated on maps and in GIS. See Appendix H for details beyond what follows. In some places it is not possible to identify the boundary to a particular ground or demographic feature and no other discussion is provided below beyond the follow general nature that applies to most of the boundary segments, which are:

- Wilderness and other agency boundaries
- Plant communities and species range limits
- Roads with rights-of-way...WHMA boundary is the right-of-way limit on the WHMA side of the right-of-way
- Roads without rights-of-way...WHMA boundary is 100 feet from the centerline of the road
- Land ownership...WHMA boundary is section line(s)

Large DWMA Boundaries

A. **Joshua Tree National Park DWMA**. DWMA boundary is the park boundary.

B. **Chemehuevi DWMA**. In the northwest part of the DWMA, beginning at the west intersection of Clipper Mountains Wilderness Area and Freeway I-40, DWMA boundary runs as follows:

- south on west wilderness boundary to road 690119 (also a pipeline)
- west about 1.5 miles on inventoried road (690119) to its intersection with non-route 690126 (also a pipeline)
- east on non-route 690126 (also a pipeline), to its intersection with old Route 66
- northeast on old Route 66 to its intersection with road 690119 (also a pipeline)
- about 1.6 miles east on road 690119 (also a pipeline) to its intersection with a section line running between Sections 21-22, 27-28, and 33-34 of T7NR16E; and Sections 3-4 and 9-10 of T6NR16E

- south about 4 miles on above section line to its intersection with road 690200
- southeast on road 690200 to Old Woman Mountains Wilderness Area boundary, crossing the boundary on the same road trace to its intersection with the boundary of current tortoise critical habitat south through wilderness on the boundary of currently designated tortoise critical habitat to its intersection with a railroad (also wilderness boundary)
- south on railroad to its intersection with road 690228
- about 1 mile north on road 690228 to its intersection with road 690608
- northeast on road 690608 to its intersection with road 690609
- southeast on road 690609 to its intersection with road 690616
- northeast on road 690616 to its intersection with road 690622
- northeast, then southeast on road 69022 to Turtle Mountains Wilderness Area boundary
- north and west on wilderness boundary to its intersection with the boundary of currently designated tortoise critical habitat
- north, east, then south through wilderness on the critical habitat boundary to the intersection of wilderness boundary
- south on wilderness boundary to the southern-most intersection of wilderness boundary and road 690734
- south on road 690734 to its intersection with road 690609
- northeast on road 690609 to its intersection with U.S. Highway 95
- as road 690609 crosses (to east of) U.S. Highway 95, it changes to road 690742
- east on road 690742 to its intersection with road 690682
- north on road 690682 to its intersection with Whipple Mountains Wilderness Area boundary
- north on wilderness boundary to the intersection of two roads: 690519 and 690634
- north on road 690519 and wilderness boundary to its intersection with road 690510
- 1/10 mile northeast on 690510 to its intersection with road 690056 (also a power line)
- northwest on road 690056 to its intersection with Lake Havasu Road (a paved highway)
- east on Lake Havasu Road to its intersection with Chemehuevi Mountains Wilderness Area boundary
- north on wilderness boundary to its intersection with U.S. Highway 95
- north on wilderness boundary joint with U.S. Highway 95 to its intersection with road 690203 (also a pipeline)
- west on road 690203 to its intersection with road 690261
- 2/10 mile north on 690261 to its intersection with road 690119 (also a pipeline)
- west on road 690119 to its intersection with road 690257
- north on road 690257 to its intersection with road 690102
- north on road 690102 to its intersection with road 690246
- west on road 690246 to its intersection with road 690243
- west on road 690243 to its intersection with road 690056 (also a power line)
- northwest on road 690056 to its intersection with road 690085
- east on road 690085 to its intersection with road 690073
- west then north on road 690073 to its intersection with road 690064
- west on road 690064 to its intersection with Bigelow Cholla Garden Wilderness Area boundary
- north 1/10 mile on wilderness boundary to its intersection with current boudary tortoise critical habitat
- northwest on critical habitat boundary to its intersection with Freeway I-40
- west on I-40 to its intersection with Clipper Mountains Wilderness Area boundary, thence to the beginning of DWMA as described above but circumventing some lands around freeway exits along I-40 as follows (to the south side, only):
  a. at Water Road the NW1/4 of Section 26 and the NE 1/4 of Section 27 of T9N, R19E
  b. at Mountain Springs Pass the NE1/4 of Section 35 and NW1/4 of Section 36 of T9N, R18E
  c. at Fenner the W½ of Section 3 and the E½ of Section 4 of T8N, R17E

d. at Essex Road the NE1/4 of Section 8 and the NW1/4 of Section 9 of T8N, R16E

e. an additional "cutout" exclusion in the DWMA has been provided for the town of Essex. The excluded area is W½, NE 1/4, and the NW 1/4 of the SE 1/4 of Section 31 of T8N, R17E

C. **Chuckwalla DWMA** In the northwest part of the DWMA, beginning at the intersection of the Joshua Tree National Park boundary and the section line between Sections 22 and 23 in T5S, R9E, DWMA boundary runs as follows:

- east and north on the JTNP boundary to its intersection with road 660327
- east on road 660327 to its intersection with road 660326
- north on road 660326 to its intersection with road 660329
- north on road 660329 to its intersection with road 660334
- northeast on road 660334 to its intersection with road 660332
- south on road 660332 to its intersection with road 660333 (aka Kaiser Road)
- south on road 660333 to its intersection with Highway 177, south on Highway 177 to its intersection with I-10, excluding the following: S½ Section 22, W½ Section 26, and all of Section 27 of T5S, R15E.
- before continuing east on I-10 from its intersection with Highway 177, there are five "cutout" exclusions for freeway exits west of this point (from east to west):
  - a. at Eagle Mountain, W½ of Section 29, Section 30, N½ Section 31, NW 1/4 Section 32 of T5S, R15E
  - b. at Red Cloud, W½ of Section 6 and the NW1/4 of Section 7 of T6S, R14E and E½ Section 1 and NE1/4 of Section 12 of T6S, R13E
  - c. at Hayfield, S½ Section 5 and the N½ Section 8 of T6N, R13E
  - d. at Chiriaco Summit, all of Sections 9, 10, and 16
  - e. at Box Canyon Highway, all of sections 11, 12, 13, and 14
- (continuing east from item 7, above) east along I-10 to Corn Springs Exist
- east and south of I-10 along the old highway alignment, now named Chuckwalla Road, to its intersection with I-10 at Ford Dry Lake Exit, excluding the SE1/4 of Section 33 and S½ of Section 34 of T6S, R19E
- east along I-10 to its intersection with Wiley Road, excluding the E½ of Section 32 and the W½ of Section 33 of T6S, R20E
- south on Wiley Well Road to its intersection with the Palo Verde Mountains Wilderness Area, excluding (west of Wiley Well Road) the private land of the Chuckwalla Prison area as follows: Section 16, Section 17, the E½ of Section 18, the NE 1/4 of the NW 1/4 of Section 18, and the W½ of NE 1/4 of Section 20
- east along wilderness boundary to its intersection with currently designated tortoise critical habitat
- south on critical habitat boundary (through wilderness) to its intersection with wilderness on the east side of Section 12 of T10S, R20E
- north and east on wilderness boundary to its intersection with road 670569
- south on road 670569 about three miles to its intersection with T670576 (Milpitas Road, a county maintained road)
- east on T670576 about one mile to its intersection with Highway 78
- south on Highway 78 to its intersection with the south boundary of T12S, R19E, the section line on the south side of Section 35
- west along the section line on the south side of Section 35 to its intersection with the boundary of the Chocolate Mountains Aerial Gunnery Range (CMAGR), also coincident with currently designated tortoise critical habitat
- north along the joint CMAGR-critical tortoise habitat boundary to their split, then, with no deviation from current critical tortoise habitat, northwesterly through:
  - a. CMAGR

b. Orocopia Wilderness Area

c. (part of) Mecca Hills Wilderness Area to the intersection of Mecca Hills Wilderness Area boundary and the north-south running section line that separates Sections 9 and 10 of T6S, R9E

- north for two miles from the above-noted intersection
- east for one mile along the section line on the north side of Section 3 of T6S, R9E
- north two and one-half miles on the section line that separates the following pairs of sections: 34 and 35, 26 and 27, and 22 and 23 of T5S, R9E, thence to the beginning of DWMA as described above at its intersection with Joshua Tree National Park.

Areas within Large DWMAs in which unspecified navigable washes are designated as open routes

In certain areas of the Chemehuevi and Chuckwalla DWMAs, in the Low Risk-Preferred Alternative, all navigable washes are designated as open routes of travel. This is not the case within Joshua Tree National Park. In other portions of these two DWMAs in this alternative and for all DWMAs in other alternatives this is not the case and washes are designated as open routes or travel only on a specific, wash by wash basis (i.e., same as for routes shown on the routes of travel inventory). See Map 2-10 Appendix A.

Joshua Tree National Park DWMA - There are no area basis designations.

Chemehuevi DWMA. Unspecified navigable washes are designated closed in the DWMA in most locations. In a few areas of DWMA all unspecified navigable washes are designated as open routes. These areas are as follows:

Essex-east of Old Woman Mountains area. Boundary, starting from the intersection of Clipper Mountains Wilderness Area and I-40:

- south on Clipper Mountains Wilderness Area eastern boundary to its intersection with non-route 690126 (also a pipeline)
- east on non-route 690126 (also a pipeline), to its intersection with a section line running between Sections 21-22, 27-28, and 33-34 of T7NR16E; and Sections 3-4 and 9-10 of T6NR16E
- south about 4 miles on above section line to its intersection with road 690200
- southeast on road 690200 to Old Woman Mountains Wilderness Area boundary
- northeast and southeast on wilderness boundary to its intersection with road 690054 (MWD Ward Valley power line service road)
- north on road 690054 to its intersection with road 690228
- west on road 690228 to its intersection with road 690212
- west on road 690212 to its intersection with Piute Mountains Wilderness Area boundary
- west on joint road 690212 and wilderness boundary (past the wilderness gap
- staying on road 690212) to their intersection
- west on wilderness boundary to its intersection with road 690211 (aka Sunflower Springs Road)
- north on joint road 690211 and wilderness boundary to their intersection
- north on wilderness boundary to its intersection with Old National Trails Highway
- northeast on joint highway and wilderness boundary (past the wilderness gap staying on Old National Trails Highway) to their intersection
- north on Old National Trails Highway to its intersection with I-40
- west on I-40 (as described in Item 43 for Chemehuevi DWMA boundary, above) to its intersection with the Clipper Mountains Wilderness Area, thence to the beginning of this designation area

East Ward Valley and East Chemehuevi Valley areas: Boundary, all of DWMA east of road 690056. See Chemehuevi DWMA boundary description, above for more DWMA boundary details.

Savahia Peak area: Boundary, starting from the intersection of Highway 95 and road 690634:

- south on Highway 95 to its intersection with southern boundary of DWMA (road 690742
- east on road 690742 to its intersection with road 690682
- north on road 690682 to its intersection with Whipple Mountains Wilderness Area boundary
- north on wilderness boundary to the intersection of two roads: 690519 and 690634
- west on road 690634 to its intersection with road 690660
- west on road 690660 to its intersection with road 690634
- west on road 690634 to its intersection with Highway 95, thence to the beginning of this designation area

Chuckwalla DWMA

Unspecified navigable washes are designated closed in the DWMA in the following locations:

- Chocolate Mountains Aerial Gunnery Range
- all BLM wilderness areas
- Most of current Chuckwalla ACEC
- north of I-10
- south of I-10 and northwest of Box Canyon Highway

In all other areas of this DWMA unspecified navigable washes are designated open routes.

Small DWMA Boundaries

A. **Joshua Tree National Park DWMA.** DWMA boundary is the park boundary.

B. **Chemehuevi DWMA.** In the northwest part of the DWMA, beginning at the west intersection of Clipper Mountains Wilderness Area and Freeway I-40, DWMA boundary runs as follows:

- south on west wilderness boundary to road 690119 (also a pipeline)
- west about 1.5 miles on inventoried road (690119) to its intersection with non-route 690126 (also a pipeline)
- east on non-route 690126 (also a pipeline) to its intersection with old Route 66
- northeast on old Route 66 to its intersection with Section 31 of T8N, R17E
- north along the west side of Section 31
- east along the north edge of Section 31 to its intersection with old Route 66
- northeast along old Route 66 to it's intersection with the Piute Mountains Wilderness Area
- counterclockwise along the wilderness boundary, across the cherry stem (that divides the wilderness area) gap on road 690212, continuing counterclockwise along the wilderness boundary to its intersection with road 690061
- northeast on road 690061 to its intersection with road 690054
- south on road 690054 to its intersection with the railroad along the north side of Danby Dry Lake (in Section 16, T2N,R18E)
- south on railroad to its intersection with road 690228
- about 1 mile north on road 690228 to its intersection with road 690608
- northeast on road 690608 to its intersection with road 690609
- southeast on road 690609 to its intersection with road 690616
- northeast on road 690616 to its intersection with road 690622
- northeast, then southeast on road 69022 to Turtle Mountains Wilderness Area boundary
- north and west on wilderness boundary to its intersection with the boundary of currently designated tortoise critical habitat

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- north, east, then south through wilderness on the critical habitat boundary to the intersection of wilderness boundary
- south on wilderness boundary to the southern-most intersection of wilderness boundary and road 690734
- south on road 690734 to its intersection with road 690609
- northeast on road 690609 to its intersection with U.S. Highway 95
- as road 690609 crosses (to east of) U.S. Highway 95, it changes to road 690742
- east on road 690742 to its intersection with road 690682
- north on road 690682 to its intersection with Whipple Mountains Wilderness Area boundary
- north on wilderness boundary to the intersection of two roads: 690519 and 690634
- north on road 690519 and wilderness boundary to its intersection with road 690510
- 1/10 mile northeast on 690510 to its intersection with road 690056 (also a power line)
- northwest on road 690056 to its intersection with Lake Havasu Road (a paved highway)
- east on Lake Havasu Road to its intersection with Chemehuevi Mountains Wilderness Area boundary
- north on wilderness boundary to its intersection with U.S. Highway 95
- north on wilderness boundary joint with U.S. Highway 95 to its intersection with road 690203 (also a pipeline)
- west on road 690203 to its intersection with road 690261
- 2/10 mile north on 690261 to its intersection with road 690119 (also a pipeline)
- west on road 690119 to its intersection with road 690257
- north on road 690257 to its intersection with road 690102
- north on road 690102 to its intersection with road 690246
- west on road 690246 to its intersection with road 690243
- west on road 690243 to its intersection with road 690056 (also a power line)
- northwest on road 690056 to its intersection with road 690085
- east on road 690085 to its intersection with road 690073
- west then north on road 690073 to its intersection with road 690064
- west on road 690064 to its intersection with Bigelow Cholla Garden Wilderness Area boundary
- north 1/10 mile on wilderness boundary to its intersection with current boundary tortoise critical habitat
- northwest on critical habitat boundary to its intersection with Freeway I-40
- west on I-40 to its intersection with Clipper Mountains Wilderness Area boundary, thence to the beginning of DWMA as described above but circumventing some lands around freeway exits along I-40 as follows (to the south side, only):
  a. at Water Road the NW1/4 of Section 26 and the NE 1/4 of Section 27 of T9N, R19E
  b. at Mountain Springs Pass the NE1/4 of Section 35 and NW1/4 of Section 36 of T9N, R18E
  c. at Fenner the W½ of Section 3 and the E½ of Section 4 of T8N, R17E
  d. at Essex Road the NE1/4 of Section 8 and the NW1/4 of Section 9 of T8N, R16E

C. **Chuckwalla DWMA** In the northwest part of the DWMA, beginning at the intersection of the Joshua Tree National Park boundary and the section line between Sections 22 and 23 in T5S, R9E, DWMA boundary runs as follows:

- east and north on the JTNP boundary to its intersection with road 660327
- east on road 660327 to its intersection with road 660326
- north on road 660326 to its intersection with road 660329
- north on road 660329 to its intersection with road 660334
- northeast on road 660334 to its intersection with road 660332
- south on road 660332 to its intersection with road 660333 (aka Kaiser Road)
- south on road 660333 to its intersection with Highway 177, south on Highway 177 to its intersection with I-10, excluding the following: S½ Section 22, W½ Section 26, and all of Section

27 of T5S, R15E.

- before continuing east on I-10 from its intersection with Highway 177, there are five "cutout" exclusions for freeway exits west of this point (from east to west):
    - a. at Eagle Mountain, W½ of Section 29, Section 30, N½ Section 31, NW 1/4 Section 32 of T5S, R15E
    - b. at Red Cloud, W½ of Section 6 and the NW1/4 of Section 7 of T6S, R14E and E½ Section 1 and NE1/4 of Section 12 of T6S, R13E
    - c. at Hayfield, S½ Section 5 and the N½ Section 8 of T6N, R13E
    - d. at Chiriaco Summit, all of Sections 9, 10, and 16
    - e. at Box Canyon Highway, all of sections 11, 12, 13, and 14
- (continuing east from item 7, above) east along I-10 to Corn Springs Exist
- east and south of I-10 along the old highway alignment, now named Chuckwalla Road, to its intersection with I-10 at Ford Dry Lake Exit, excluding the SE1/4 of Section 33 and S½ of Section 34 of T6S, R19E
- east along I-10 to its intersection with Wiley Road, excluding the E½ of Section 32 and the W½ of Section 33 of T6S, R20E
- south on Wiley Road to its intersection with road 660159 (aka Bradshaw Trail), excluding (west of Wiley Well Road) the private land of the Chuckwalla Prison area as follows: Section 16, Section 17, the E½ of Section 18, the NE 1/4 of the NW 1/4 of Section 18, and the W½ of NE 1/4 of Section 20
- west on road 660159 (aka Bradshaw Trail) to its intersection with road 660594
- east on road 660594 to its intersection with road 660588
- north on road 660588 to its terminus.
- north on a straight line (not possible to define on the ground) to the south terminus of road 660576 located about one half mile southeast of Chuckwalla Spring. This undefined connecting line is about 1.5 miles in length.
- north on road 660576 to its intersection with road 660581
- north on road 660581 to its intersection with road 660469
- west on road 660469 to its intersection with road 660159 (aka Bradshaw Trail)
- southeast on road 660159 to its intersection with the boundary of the Chocolate Mountains Aerial Gunnery Range (CMAGR)
- clockwise on the CMAGR boundary to its intersection with currently designated tortoise critical habitat
- northwest on critical tortoise habitat boundary through:
    - a. CMAGR
    - b. Orocopia Wilderness Area
    - c. (part of) Mecca Hills Wilderness Area to the intersection of Mecca Hills Wilderness Area boundary and the north-south running section line that separates Sections 9 and 10 of T6S, R9E
- north for two miles from the above-noted intersection
- east for one mile along the section line on the north side of Section 3 of T6S, R9E
- north two and one-half miles on the section line that separates the following pairs of sections: 34 and 35, 26 and 27, and 22 and 23 of T5S, R9E, thence to the beginning of DWMA as described above at its intersection with Joshua Tree National Park.

APPENDIX Q
Photos

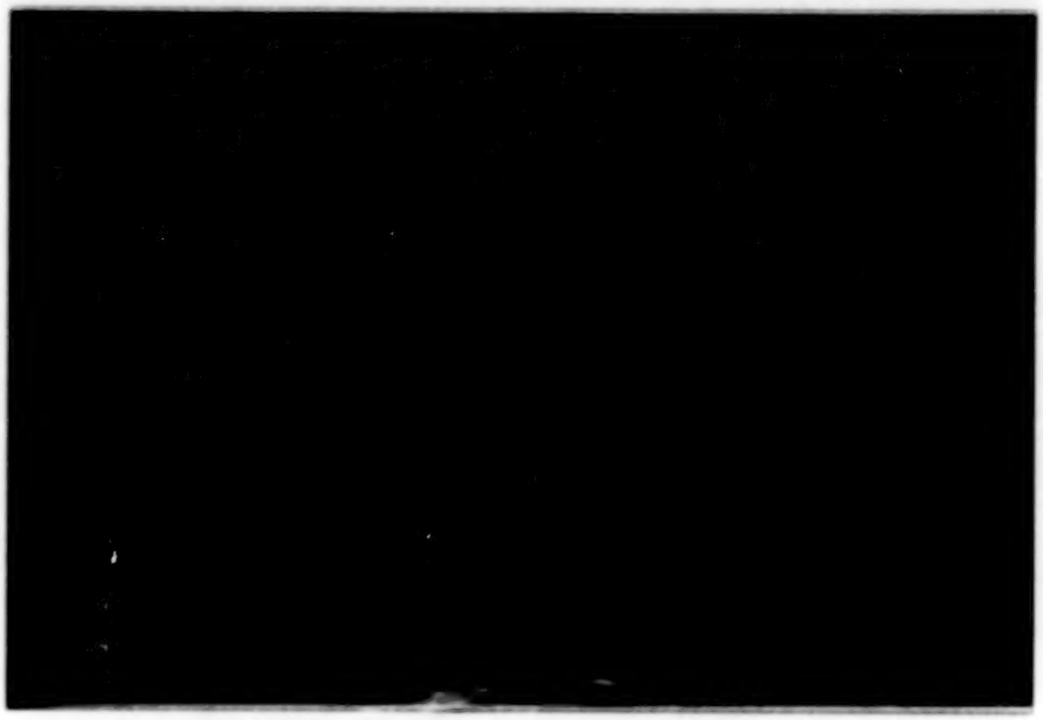

Photo # 3. Sonoran Desert Scrub natural community.

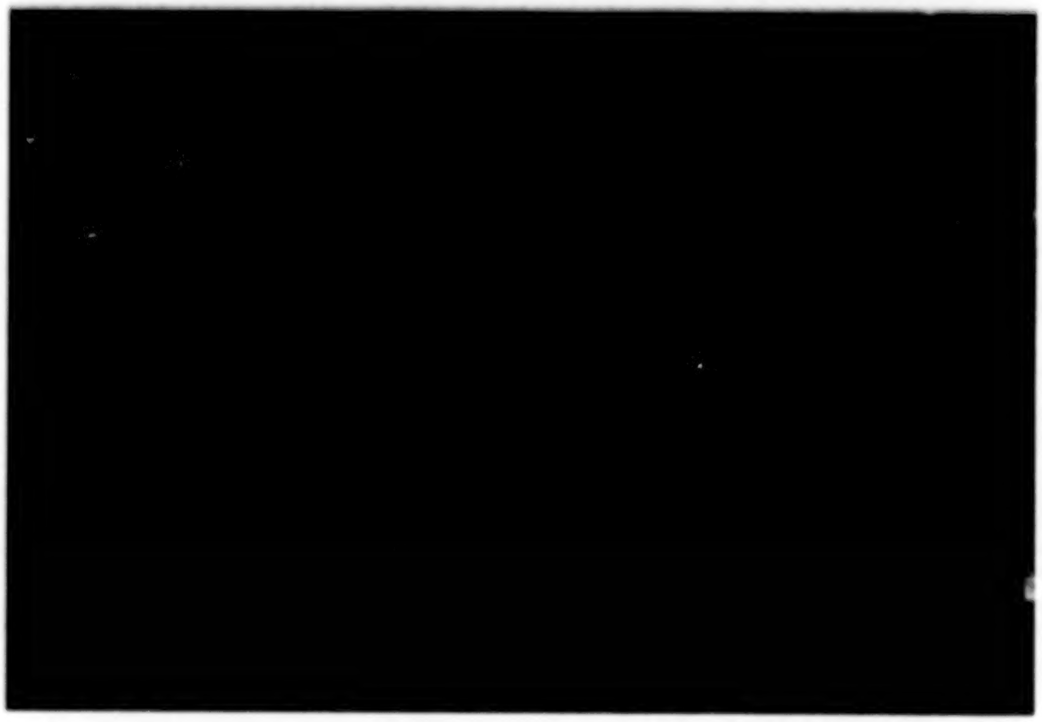

Photo # 4. Sonoran Desert Scrub natural community (shows considerable alien plants intrusion in foreground).

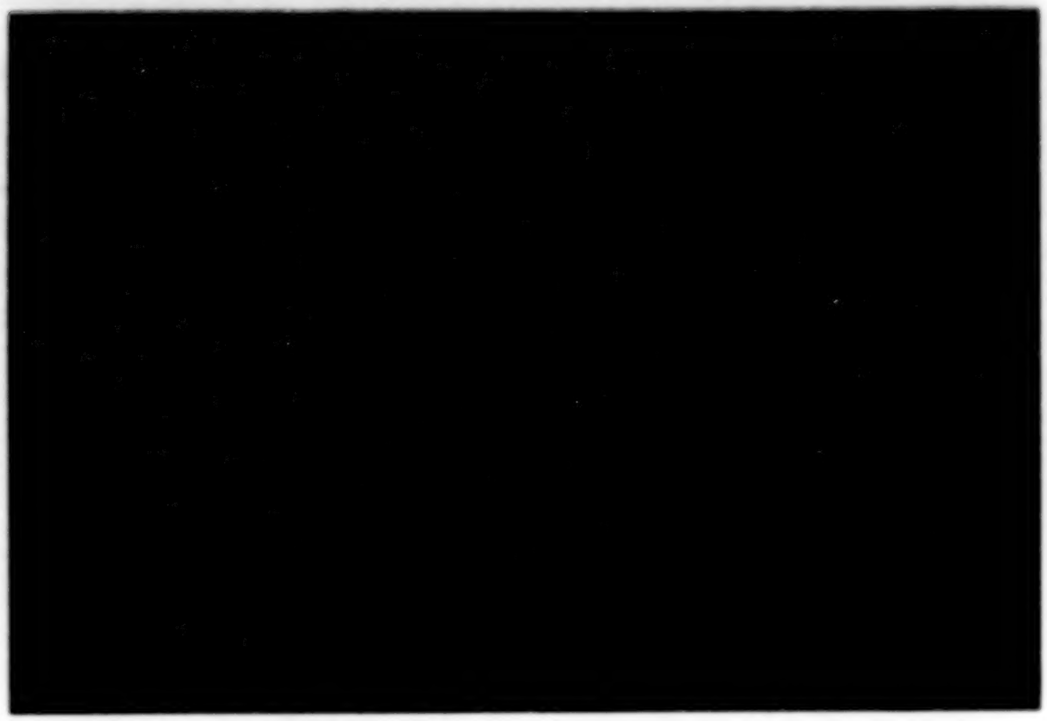

Photo # 5. Desert Dry Wash Woodland natural community (Ironwood Trees).

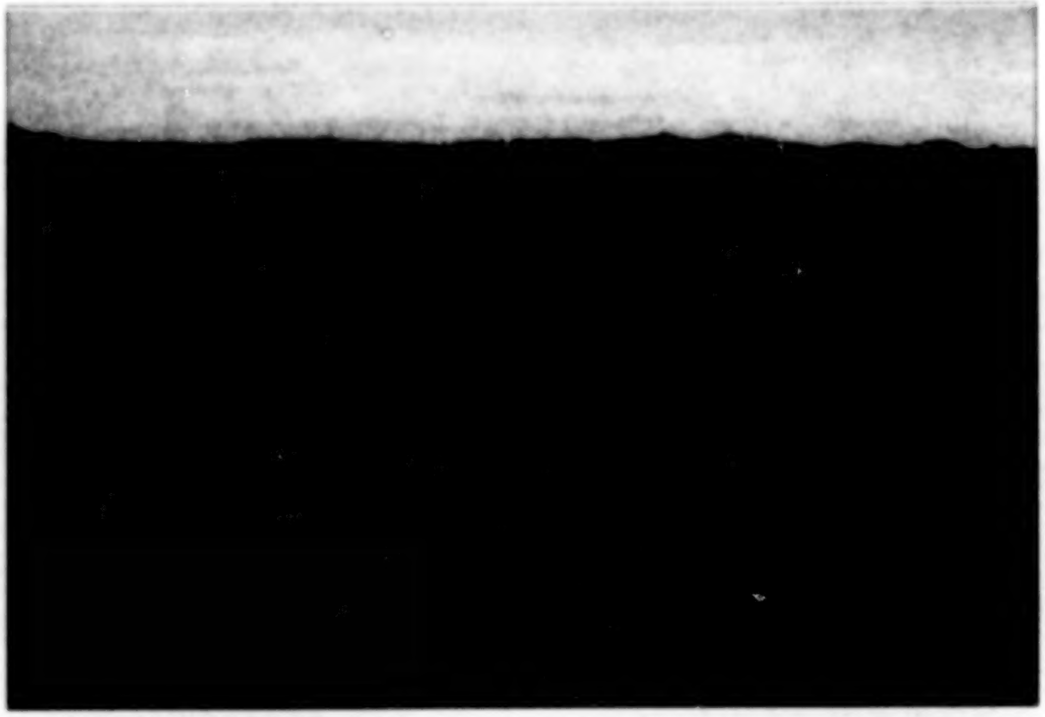

Photo # 6. Desert Dry Wash Woodland natural community (Palo Verde trees).

Photo # 7. Playa natural community.

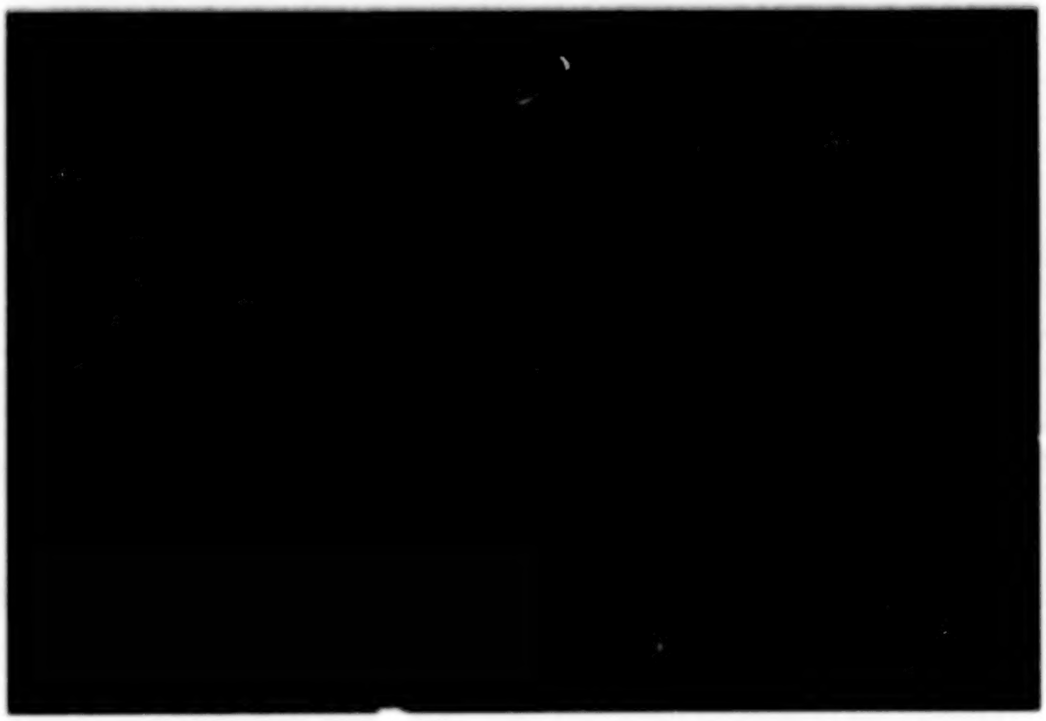

Photo # 8. Sand Dunes natural community.

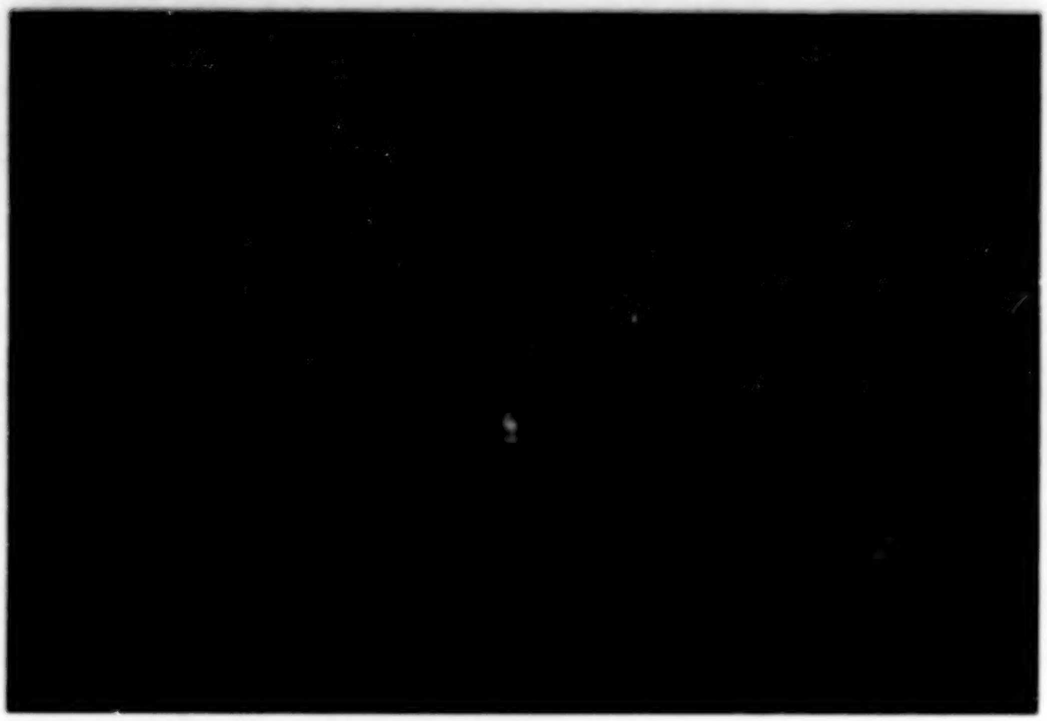

Photo # 9. Desert Chenopod Scrub natural community.

Photo # 10. Mojave Pinion and Juniper Woodland natural community.

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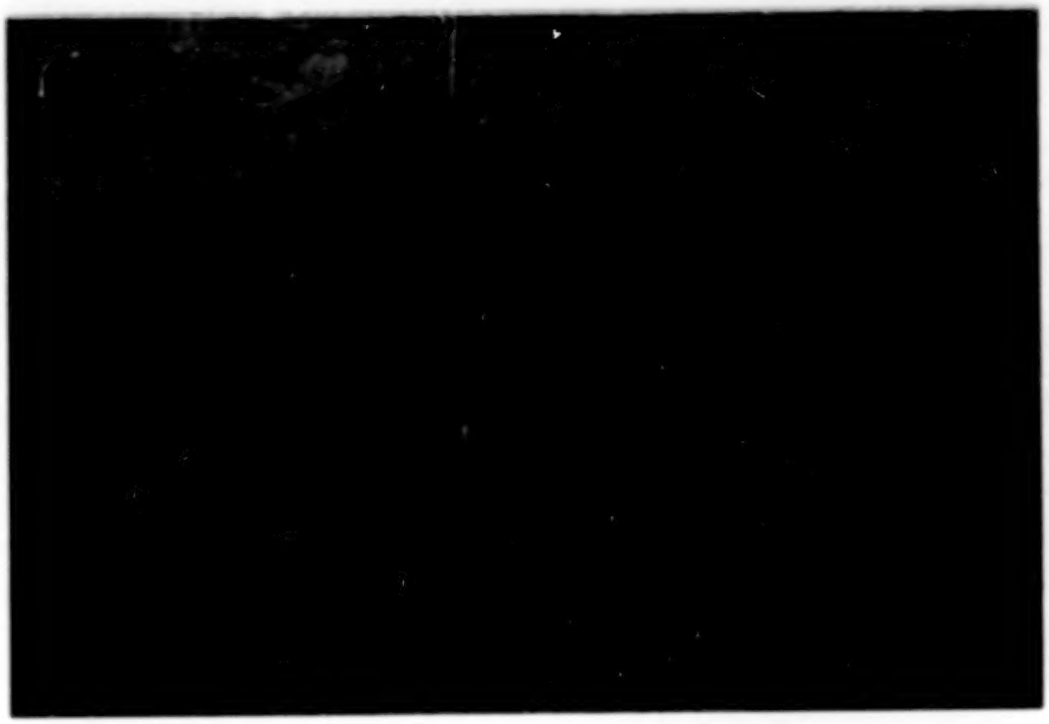

Photo # 11. Spring / Seep natural community.

Photo # 12. Spring / Seep (Palm Oasis) natural community
(Corn Springs campground).

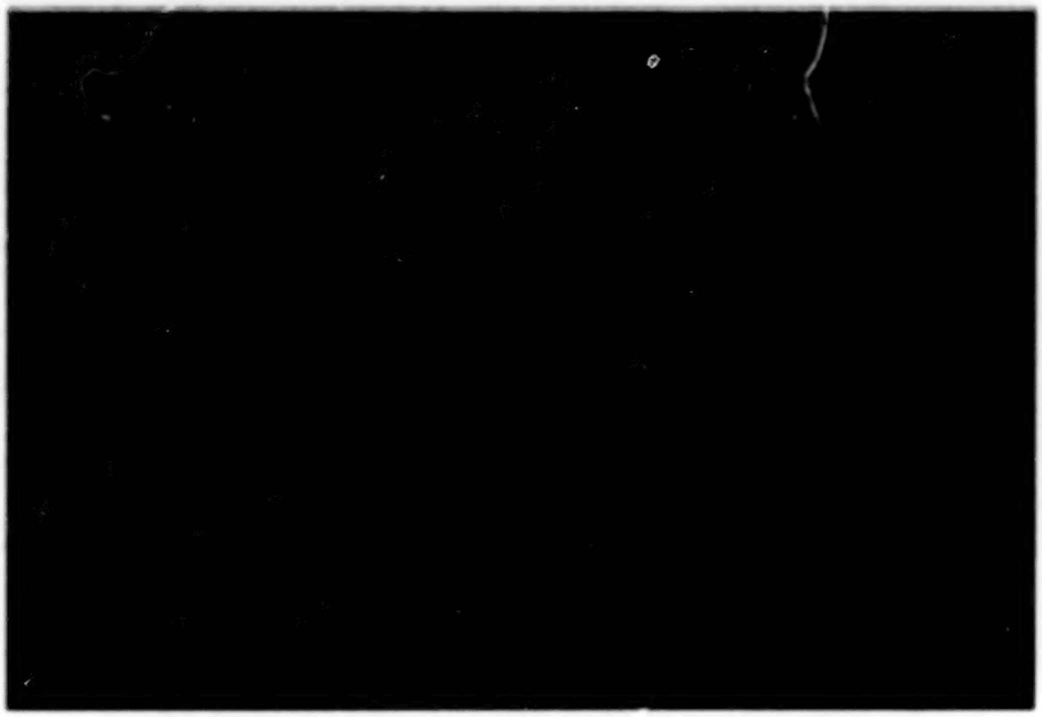

Photo # 13. Developed Land (Palo Verde Valley farmland).

Photo # 14. Tamarisk intrusion into riparian habitat.

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